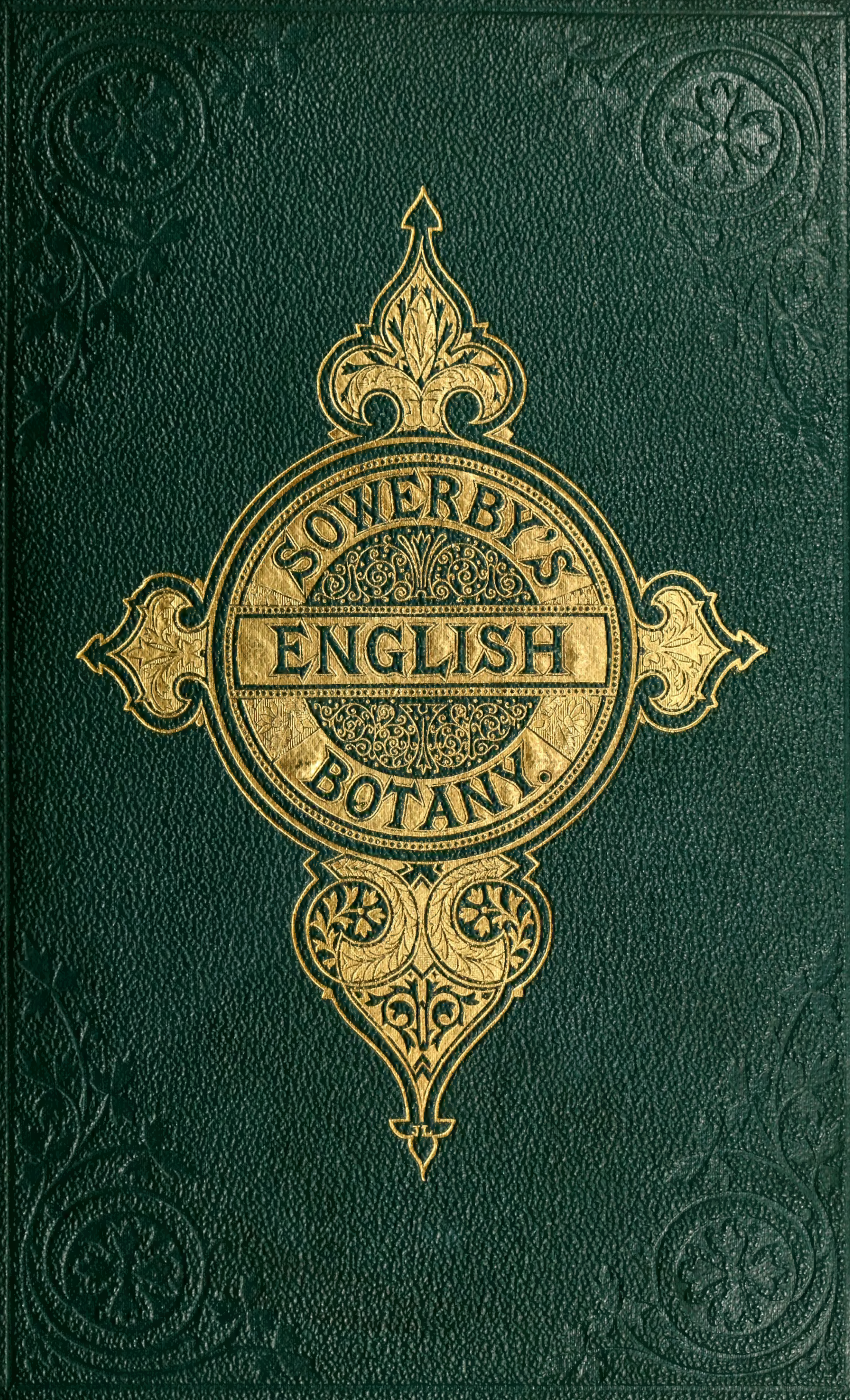

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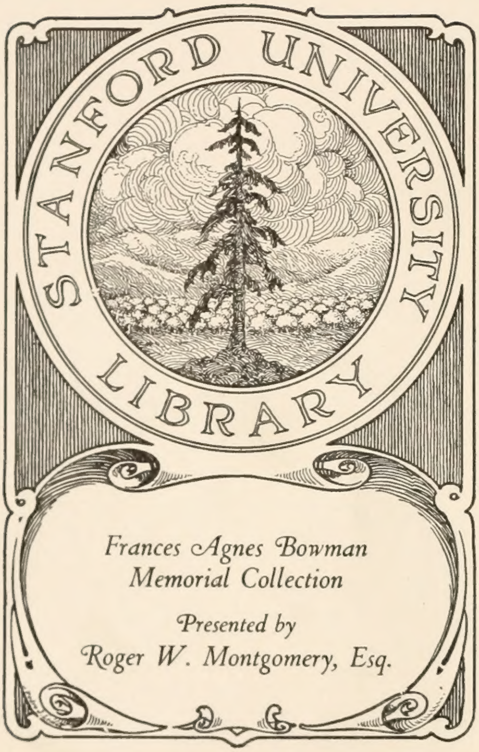

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ENGLISH BOTANY.

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AND PARLIAMENT STREET

James Sowerby

ENGLISH BOTANY;

OR,

COLOURED FIGURES

OF

BRITISH PLANTS.

EDITED BY JOHN T. BOSWELL SYME, F.L.S. ETC.
LECTURER ON BOTANY AT WESTMINSTER HOSPITAL.

THE POPULAR PORTION BY MRS. LANKESTER,
AUTHOR OF "WILD FLOWERS WORTH NOTICE," "THE BRITISH FERNS," ETC.

THE FIGURES BY
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AND
JOHN EDWARD SOWERBY,
ILLUSTRATOR OF THE "FERNS OF GREAT BRITAIN," "GRASSES OF GREAT BRITAIN,"
"WILD FLOWERS WORTH NOTICE," ETC. ETC.

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Third Edition,

ENLARGED, RE-ARRANGED ACCORDING TO THE NATURAL ORDERS,
AND ENTIRELY REVISED.
WITH DESCRIPTIONS OF ALL THE SPECIES BY THE EDITOR.

VOL. VI.

CAMPANULACEÆ TO VERBENACEÆ.

Wi

LONDON:
GEORGE BELL & SONS, YORK STREET, COVENT GARDEN;
ROBERT HARDWICKE, 192 PICCADILLY.
1873.

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ENGLISH BOTANY.

ORDER XLII.—CAMPANULACEÆ.

Herbs or undershrubs (frequently having milky juice), with alternate entire or toothed leaves, without stipules, rarely with the leaves all radical. Flowers perfect, regular or irregular, usually blue, purple, or white, generally separate, more rarely in involucrate anthodes, with the leaves of the involucre resembling the sepals of a calyx. Calyx-tube adhering to the ovary; limb free, of 5 segments, regular or irregular, persistent or deciduous, not forming a pappus. Corolla monopetalous, inserted into the throat of the calyx; limb 5-cleft or -toothed, regular or irregular—in the latter case 2-lipped or 1-lipped. Stamens 5, inserted at the base of the corolla; filaments not adhering to the corolla, and alternate with its lobes, free or united into a tube; anthers 2-celled, distinct or cohering by their margins or bases in a ring round the style, opening longitudinally. Ovary inferior, 2- or 3-, more rarely 5-celled; style 1, generally cleft at the apex into as many stigmatiferous portions as there are cells in the ovary; ovules numerous or several, very rarely 1 in each cell of the ovary. Fruit a capsule, opening by clefts or pores below or between the calyx-teeth, or by valves above the calyx-limb, or a berry or drupe and indehiscent. Seeds albuminous; embryo straight, in the midst of fleshy albumen.

Sub-Order I.—LOBELIEÆ.

Odd segment of the calyx anterior, directed towards the stem. Corolla irregular, frequently more or less 2-lipped. Anthers cohering, usually dissimilar; pollen ovoid. Style glabrous, with a bilobed or entire stigma surrounded by hairs.

Genus I.—LOBELIA. *Linn.*

Calyx 5-cleft. Corolla tubular, with the tube split above; limb 2-lipped, with the upper lip with 2 erect or recurved segments; the lower one 3-lobed, larger and spreading. Anthers cohering in a ring round the style, the 2 lower ones generally bearded at the apex. Style with a fringe of hairs round the stigma. Capsule 2-celled, more rarely 3-celled, opening by 2 (or 3) valves.

Herbs, with the flowers generally blue or lilac, in racemes, each flower in the axil of a bract, or in some cases of a leaf.

This genus of plants was named in honour of the Flemish physician Matthias de Lobel. He was the author of various works, particularly that called "Icones Plantarum." He was born at Lisle in 1538, became botanist and physician to King James I., and died in London in 1616. Throughout life he was a great traveller, and a zealous promoter of his favourite science of botany.

SPECIES I.—LOBELIA DORTMANNA. *Linn.*

PLATE DCCCLXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDCXVIII. Fig. 3.

Leaves all radical, linear, sub-cylindrical, composed of 2 parallel tubes. Scape simple, leafless or with a very few minute bract-like leaves. Pedicels longer than the bracts. Flowers drooping, in an elongated lax simple raceme. Calyx glabrous, obconic, the tube twice as long as the segments. Corolla much longer than the calyx, sub-glabrous, split above, with the 2 upper lobes linear, erect; under lip longer than the upper, 3-cleft, with the lobes elliptical-oblong, sub-obtuse. Filaments free at the base, anthers included, pilose at the tips, the 2 lowest bearded.

In lakes with clear gravelly bottoms. Not uncommon in upland districts. It occurs in Wales, Shropshire, Cumberland, and in most of the Scotch counties, excepting those of the South-east, reaching North to Sutherland and the Hebrides, and the Isle of Hoy, in Orkney.

England, Scotland, Ireland. Perennial. Late Summer.

Root of numerous long simple pure-white brittle fibres. Leaves numerous, glabrous, all in a radical tuft, 1 to 3 inches long, rather thicker than a crow-quill, slightly recurved, obtuse, submerged. Stem solitary, or rarely 2 or 3 from one root, 1 to 2 feet high, hollow, unbranched, frequently with a few scale- or bract-like leaves. Raceme rising out of the water, lax, with 3 to 15 drooping flowers on rather short very slender pedicels. Bracts oblong-lanceolate, obtuse, much shorter than the pedicels, herbaceous. Flowers $\frac{3}{4}$ to 1 inch long, very pale lilac. Capsule drooping, broadly clavate, acuminate, the point exceeding the lobes of the calyx, and terminated by the style. Plant glabrous.

Water Lobelia.

French, *Lobélie de Dortmann.* German, *Wasser Lobelie.*

The specific name of this species was given in honour of Dortmann, a Dutch apothecary, who did good service to Botany. It is sometimes called the Cardinal flower; but this name is more appropriately given to the species with red flowers, in which a resemblance may be fancied in colour and shape to a cardinal's hat.

SPECIES II.—LOBELIA URENS. *Linn.*

Plate DCCCLXII.

Billot, Fl. Gall. et Germ. Exsicc. No. 584.

Radical leaves oblong-oblanceolate or obovate, sub-petiolate; stem-leaves narrowly oblong, sessile, the uppermost ones strap-shaped, oblong; all flat, irregularly serrate-dentate, with the teeth callous-pointed, glabrous above, usually puberulent beneath. Pedicels shorter than the bracts. Flowers sub-erect, in elongated rather dense racemes. Calyx puberulent, clavate-cylindrical, the tube scarcely as long as the segments. Corolla much longer than the calyx, puberulent, split above, with the two upper lobes linear-lanceolate, ascending; under lip as long as the upper, 3-cleft, with the lobes lanceolate, acute. Filaments free at the base. Anthers sub-exserted, pilose, the 2 lower ones bearded at the apex.

On bushy heaths. Very rare. "At the bottom of Kilmington Hill or Shute Common (Axminster end), on a part of the heath facing the George public-house, but on the other side of the road, growing amongst tufts of short furze or heath in tolerable plenty, 1836. The inhabitants know the plant from the visits of the curious. I am told by Mr. Abraham it occurs scattered over Woodbury Hill, and I found one specimen at a considerable distance from the general station."—(Dr. Bromfield, in New Botanist's Guide, p. 551.) Also said to be found by the Rev. J. Dix near Ashford, Kent; but it seems doubtful if more than a single root was observed.

England. Perennial. Autumn.

Stem 1 to 2 feet high, simple or paniculately branched. Radical leaves almost in a rosette, 1 to 3 inches long; stem-leaves becoming smaller and less attenuated at the base in proportion as they are placed higher on the stem. Racemes simple, that which terminates the main stem much larger than those of the branches. Bracts linear-acute, about three times as long as the short pedicels, densely puberulent, herbaceous, tipped with red. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch long. Tube of the corolla funnel-shaped-cylindrical, twice as long as the calyx-segments; limb pale-blue. Capsule erect, the point falling short of the sepals. Plant sub-glabrous, or more or less puberulent.

Acrid Lobelia.

French, *Lobélie Brûlante.*

The blue flowers of this pretty little plant remind us of the well-known foreign little species *Lobelia speciosa*, which forms so pretty a bordering to our flower-beds in the height of summer, which, however, is not hardy. Our native species is acrid and pungent if taken into the mouth, especially near the root. It is possible that it may possess some medicinal properties as well as its foreign relations.

SUB-ORDER II.—CAMPANULINEÆ.

Odd segment of the calyx posterior, turned away from the stem. Corolla regular. Anthers all alike, generally free; pollen spherical. Style hairy.

GENUS II.—**JASIONE.** *Linn.*

Calyx-limb 5-partite. Corolla cylindrical and straight in bud, divided almost to the base into 5 linear divisions, which are recurved when the flower expands. Stamens 5; anthers cohering by their bases. Style filiform, hairy; stigma 2-lobed, or nearly entire. Capsule sub-globular, 2-celled, opening at the summit by 2 very short valves.

Herbs, with radical leaves often in rosettes; stem-leaves alternate, narrow, entire or sinuated, and often undulated at the margins. Flowers small, blue or lilac, in involucrate heads, resembling the anthodes of the Compositæ. Plant with the aspect of a Scabious.

The name of this genus of plants is said to come from *ιασωνη* (*iasone*), a name given by Theophrastus to a wild potherb now unknown.

SPECIES I.—**JASIONE MONTANA.** *Linn.*

PLATE DCCCLXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDLXXVIII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 50.

Annual or biennial, without stolons. Stem simple or branched. Radical leaves in a rosette, narrowly oblanceolate; stem-leaves sessile, oblong; all obtuse, undulated and crenate or repand at the margins, sparingly clothed and ciliated with short white bristly hairs. Peduncles glabrous, leafless for a considerable distance beneath the anthodes. Anthodes hemispherical. Bracts of the involucre roundish or sub-rhomboidal, ovate, acute, entire or crenulated or rarely with a few blunt teeth.

In sandy fields, commons, and roadsides. Not uncommon in England; in Scotland confined to the West coast, where it reaches North to Orkney and Shetland, the only locality on the East side of the island being in Moray.

England, Scotland, Ireland. Biennial or annual. Summer and Autumn.

Root a long tap-root, producing a rosette of radical leaves narrowed towards the base, and almost always decayed before the plant flowers. Stems numerous, 3 inches to 2 feet high, simple or slightly branched, the lateral ones decumbent at the base. Stem-leaves thickly disposed, $\frac{1}{4}$ to $\frac{3}{4}$ inch long. Peduncles (or rather the leafless portion of the stem or branch below the flower-head) 2 to 6 inches long. Flower-heads $\frac{1}{2}$ to 1 inch across. Flowers rather longer than the involucre, lilac-blue, the very slender segments separate nearly to the base of the corolla. Capsule globular-ovoid, concealed under the mass of withered corollæ through which the elongated rather stiff sepals appear. Plant pale-green, with the leafy part of the stem and leaves hispid; the peduncles always, and the bracts of the involucre usually glabrous.

Annual Sheep's-bit.

French, *Jasione de Montagne.* German, *Berg Jasione.*

This little plant has so much the aspect of a *Scabiosa*, that it is often called "Sheep's Scabious," and by Linnæus was classed with the Compositæ.

GENUS III.—**PHYTEUMA.** *Linn.*

Calyx-limb 5-partite. Corolla cylindrical and curved upwards in bud, divided almost to the base into 5 linear segments, which remain long coherent at the summit, but are at last spreading. Stamens 5; filaments dilated at the base; anthers free. Style filiform, hairy; stigma cleft at the apex into 2 or 3 rather short stigmatiferous lobes. Capsule ovoid, opening by 2 or 3 valves at the sides, or at the base by longitudinal slits.

Perennial herbs, often with enlarged root-fibres. Radical leaves stalked; stem-leaves smaller, sessile or sub-sessile. Flowers rather small, blue, purple, or straw-colour, in heads or spikes.

The name of this genus of plants seems to have been one adopted by Dioscorides, and is said to have been derived from *φυτευω* (*phuteuo*), I plant or sow, from its great increase and growth.

SPECIES I.—PHYTEUMA ORBICULARE. *Linn.*

PLATE DCCCLXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDLXXXIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 585.

Rootstock almost woody above, with a deeply-buried fusiform fleshy enlargement. Radical leaves on long petioles, lanceolate or narrowly elliptical, attenuated or ovate and abrupt at the base, serrate-crenate ; stem-leaves numerous, sessile (except the lowest, which are similar to the radical ones, but much smaller), strap-shaped, acute, nearly entire ; uppermost ones lanceolate-acuminate. Heads globular in flower, ovoid in fruit. Bracts ovate or ovate-lanceolate, acute or acuminate. Calyx-segments broadly lanceolate-triangular. Segments of the corolla at length separating throughout. Capsule usually 3-celled.

On chalk downs and in chalk-pits. Local. Not uncommon in Hampshire, Sussex, Surrey, and Wilts ; also reported from Kent, but not on recent authority ; a specimen was sent to the Botanical Society of London from Sheffield on the authority of Mr. L. G. Lyon, but this station is very improbable.

England. Perennial. Late Summer.

Rootstock with a fleshy tuber about the size of the little finger, usually buried 2 or 3 inches below the surface ; above the tuber it is contracted, and usually divides at the top into several heads, which send up flowering-stems or tufts of leaves. Radical leaves variable in form, the petiole longer than the lamina. Stem 3 inches to 2 feet high, erect, leafy at the base, the leaves becoming more distant and much smaller towards the upper part. Heads ½ to 1 inch long in flower, 1 to 1½ inch in fruit. Flowers deep-blue, curved upwards in bud, but the segments at length separating. Styles exserted, pubescent, bright-blue, with 3 or more rarely 2 stigmas. Plant glabrous, or with a few hairs on the margins of the petioles, leaves, and bracts.

Round-headed Rampion.

French, *Raiponce Orbiculaire.* German, *Rundköpfiger Teufelskrallen.*

SPECIES II.—PHYTEUMA SPICATUM. *Linn.*

PLATE DCCCLXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDLXXXVI. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 587.

Rootstock somewhat fleshy, with a buried fusiform enlargement. Radical leaves on long petioles, ovate or lanceolate, cordate or rarely only abrupt at the base; stem-leaves few; the lowest leaves similar to the radical ones; intermediate ones sub-petiolate, narrower; upper ones distant, small, sessile, lanceolate; uppermost linear; radical and lower stem-leaves irregularly crenate-serrate: upper ones entire. Flower-heads oblong-ovoid in flower, elongated-cylindrical in fruit. Bracts linear-subulate. Calyx-teeth subulate. Segments of the corolla at length separating throughout. Capsule 2-celled, occasionally 3-celled.

In woods and thickets, in the parishes of Mayfield and Waldron, Sussex.

England. Perennial. Late Summer.

Rootstock similar to that of P. orbiculare, but larger. Stem 18 inches to 3 feet high. The lower leaves almost always distinctly cordate at the base; the stem-leaves much fewer than in the preceding species, and the sessile leaves not commencing till above the middle of the stem, the upper third of which is nearly leafless. Heads 1 to 1½ inch long in flower, 2 to 4 inches in fruit. Flowers yellowish-white: said to be sometimes blue on the Continent, but I am not aware that this form has occurred in Britain. Styles much exserted, more hairy than in P. orbiculare, and usually with 2 instead of 3 stigmas.

Spiked Rampion.

French, *Raiponce en Épi.* German, *Ahriger Teufelskrallen.*

GENUS IV.—CAMPANULA. *Linn.*

Calyx-limb 5-partite. Corolla oblong-ovoid and straight in bud, campanulate or sub-rotate, with 5 short and broad segments, which are generally slightly recurved. Stamens 5; filaments usually dilated at the base; anthers free. Style filiform, hairy, cleft at the apex into 3 to 5 elongated stigmatiferous lobes. Capsule ovoid-turbinate or prismatic, opening by 3 to 5 holes or pores on the side either at the base or the apex, or by 2 to 5 valves within the calyx-segments, when a portion of the ovary rises above the latter.

Herbs or undershrubs, with the leaves alternate, rarely opposite, the radical ones stalked; those on the stem generally sessile or semi-amplexicaul. Flowers generally showy, blue, purple, or white, commonly disposed in panicles: that of the blue- and purple-flowered species occasionally show white-flowered individuals.

The name of this genus of plants is the diminutive of *campana*, a bell, meaning a *little bell.*

SUB-GENUS I.—EU-CAMPANULA. (CAMPANULA, *Al. D.C.*)

Calyx-tube turbinate or cylindrical-turbinate, enlarged upwards. Corolla more or less bell-shaped. Capsule shorter than, or very slightly exceeding, the calyx-segments opening by pores towards the summit or near the base of the calyx-tube.

SPECIES I.—**CAMPANULA GLOMERATA.** *Linn.*

PLATE DCCCLXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDXCVI. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 1526.

Rootstock short, oblique, woody. Stem erect, stout, hairy, simple. Radical leaves on long petioles, ovate or ovate-lanceolate, cordate, irregularly crenate; lowest stem-leaves similar, but smaller; upper ones sessile, and uppermost amplexicaul; all finely pubescent above, and densely so beneath. Inflorescence a head, generally with an interrupted spike beneath it, definite, with the terminal flower opening first. Flowers erect, sessile, in a terminal head which is surrounded by an involucre of ovate-acuminate bracts, below which there are generally solitary flowers or 2 or 3 together in the axils of the leaves. Calyx-tube more or less hairy, without reflexed appendages in the angles between the segments; segments lanceolate. Corolla tubular-campanulate; segments sub-erect, about one-third of the whole corolla, ovate-acute. Stigmas 3. Capsule erect, opening by pores at the base of the calyx-tube.

In sandy and chalky pastures and waste places. Rather common in England, except on the West side of the island, extending North as far as Forfarshire.

England, Scotland. Perennial. Late Summer.

Stem 3 inches to 2 feet high, rather densely leafy, the radical leaves somewhat resembling those of Viola hirta, but narrower. Flowers 1 to $1\frac{1}{4}$ inch long, bright bluish-purple, collected into a terminal head, with others beneath them; but when the main stem is broken, the stem branches, and the flowers then have the appearance of being in panicles; but this I have never seen on the uninjured plant. Stem and under side of the leaves very thickly clothed with short white hairs, the upper side of the leaves much less thickly so.

Clustered Bell-flower.

French, *Campanula Agglomérée.* German, *Geknäuelte Glockenblume.*

SPECIES II.—**CAMPANULA TRACHELIUM.** *Linn.*

PLATE DCCCXLVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDC. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 2105.

Rootstock short, thickened, woody, sending down thickened fleshy fibres, not stoloniferous. Stems stout, erect, sparingly retrorsely hispid, simple or slightly branched. Radical leaves on long stalks, triangular-ovate, deeply-cordate; stem-leaves similar; the lower ones on short stalks, the upper narrower and sessile; all acute, coarsely doubly serrate, hispid-bristly, especially on the veins and margins. Inflorescence a racemose panicle, definite, with the terminal flower opening first. Flowers erect or inclined, shortly stalked, terminal and in the axils of the leaves. Peduncles short, 1- to 3-flowered, with 2 lanceolate bracteoles below the middle. Calxy-tube bristly, without reflex appendages in the angles between the segments; segments lanceolate-triangular. Corolla widely campanulate; segments sub-erect, about one-third of the whole corolla, ovate-acute. Stigmas 3. Capsule nodding, opening by pores at the base of the calyx-tube.

In woods and bushy places, preferring a chalky soil, but generally distributed and common in the South of England, becoming rarer towards the North, and very doubtfully native in Scotland, where it occurs in the counties of Edinburgh, Fife, and Lanark.

England, [Scotland,] Ireland. Perennial. Late Summer.

Stem 18 inches to 3 feet high, stout, leafy, with the leaves bearing considerable resemblance to those of the common nettle, except that they are doubly serrate instead of only inciso-serrate. Flowers 1¼ to 2 inches long, bright bluish-purple. Peduncles rather short, produced from the axils of the upper leaves, which are similar to the lower ones, but smaller: in small specimens these peduncles bear only a single flower, but have 2 large leaf-like bracteoles about the middle, in which abortive buds may be perceived; in luxuriant specimens these lateral buds develop into flowers, so that the peduncles in such become 3-flowered. Calyx-tube always bristly; segments sometimes so, and always ciliated. Plant deep-green, harsh to the touch from the stiffness of the short bristly hairs on the leaves.

Nettle-leaved Bell-flower.

French, *Campanula Gantelée.* German, *Nesselblättrige Glockenblume.*

This species is also called Great Throat-wort and Canterbury Bell, in allusion, probably, to the bells carried by pilgrims in processions to the shrine of Thomas à Becket at Canterbury. It is frequently admitted into gardens, and much admired. The specific name is given to it from τραχηλος (*trachelos*), the neck, in allusion to its reputed virtues in disorders of the throat, in which the older authors believe. Gerarde writes : "We have found, of our own experience, that they are excellent good against the inflammation of the throate and uvula or almonds, and all manner of cankers and ulcerations in the mouth, if the mouth and throat be gargarised and washed with the decoction of them."

SPECIES III.—CAMPANULA LATIFOLIA. *Linn.*

PLATE DCCCLXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDXCIX.
Billot, Fl. Gall. et Germ. Exsicc. No. 1032.

Rootstock short, thickened, somewhat woody, sending down slender fibres, not stoloniferous. Stems stout, erect, sparingly retrorsely pubescent, simple. Radical leaves on long stalks, triangular-ovate, cordate ; stem-leaves similar ; the lower ones subcordate, with short winged petioles ; the intermediate ones attenuated into the petiole ; the uppermost narrowly lanceolate or elliptical and sessile ; all acute, coarsely doubly-serrate, hispid-pubescent, especially on the veins and margins. Inflorescence a raceme, indefinite, with the lowest flower of the raceme opening first, and the others succeeding in regular order. Flowers erect or inclined, shortly stalked, 1 terminal, and all the rest axillary. Peduncles 1-flowered (very rarely 2- or 3-flowered), with 2 small strapshaped bracteoles about the middle. Calyx-tube glabrous (rarely hispid), puberulent at the base ; segments strapshaped-lanceolate, erect. Corolla campanulate, with the segments erect, rather more than one-third of the whole corolla triangular-lanceolate, acute. Stigmas 3. Capsule nodding, opening by pores at the base of the calyx-tube.

In woods and bushy places. Rare in the South of England, but not uncommon in the North ; plentiful in Scotland, but not extending North of Argyle, Moray, and Aberdeen.

England, Scotland, Ireland. Perennial. Late Summer and Autumn.

Stem 2 to 4 feet high, very stout and densely leafy, the lowest leaves decayed by the time of flowering. Raceme sometimes very long ; the lowest flowers from the axils of leaves, which are 3 to 6 inches long, decreasing upwards, until at the apex they become less than ½ an inch long. Corolla 1½ to 2½ inches long, very pale-lilac, purple at the base, or wholly purple. Inflorescence with the lowest flowers opening first, but the terminal flower, although not first, frequently expands before 5 or 6 of the uppermost lateral flowers. In very luxuriant specimens, flowers are also developed from the axils of the 2 minute bracteoles on the peduncle. Calyx-tube with only a few hairs towards the base; segments much longer than the tube, glabrous, ciliated, and frequently callously serrate on the margins. Leaves rather soft.

The form with the calyx-tube hispid I have not seen from Britain.

Giant Bell-flower.

French, *Campanula à Larges Feuilles.* German, *Breitblättrige Glockenblume.*

The beauty of this plant often procures for it a place in our gardens; and we remember Sir Walter Scott's description of it as the "throat-wort with its azure bell" adorning the banks of the Greta.

SPECIES IV.—CAMPANULA RAPUNCULOIDES. *Linn.*

PLATE DCCCLXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDC. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 2879.

Rootstock elongated, slender, extensively creeping, sending down fleshy fibres, and emitting very long creeping subterranean stolons. Stems rather stout, erect, puberulent, simple or very slightly branched. Radical leaves on long stalks, ovate, cordate; stem-leaves similar; the lower ones sub-cordate; the succeeding ones with short winged petioles; the upper ones sessile and lanceolate; all acute, irregularly doubly-crenate or crenate-serrate, slightly pubescent on the veins, and puberulent. Inflorescence a raceme, indefinite, the lowest flowers of the raceme opening first, the others succeeding in regular order. Flowers drooping, shortly stalked, 1 terminal, and all the rest axillary. Peduncles 1-flowered, with 2 small strapshaped bracteoles above the middle. Calyx-tube puberulent; segments strapshaped, reflexed soon after flowering. Corolla widely campanulate, with the segments slightly recurved, rather more than one-third the length of the whole corolla, ovate, sub-acute. Stigmas 3. Capsule nodding, opening by pores at the base of the calyx-tube.

A weed in cultivated fields, and said also to occur in woods and shady places. Rare and local. I have only seen it in the neighbourhood of Balwearei, near Kirkcaldy, Fifeshire, where it is a troublesome weed; it is reported also from the counties of Bedford, Nottingham, York, Edinburgh, and Perth, and on more doubtful authority from those of Oxford, Worcester, Gloucester, and Forfar.

England, Scotland. Late Summer.

Stem more slender than in the preceding species, 18 inches to 3 feet high, simple in small, paniculately-branched in large examples. Radical leaves resembling those of Viola odorata, but much narrower; stem-leaves rather distant. Flowers $1\frac{1}{4}$ to $1\frac{3}{4}$ inch long, bright-purple, secund. As in C. latifolia, the inflorescence is a true raceme, with the lowest flowers opening first; but the terminal flower generally expands before the 3 or 4 flowers immediately below it. Plant dull-green, puberulent rather than pubescent.

I have not seen the peduncles branched in this species, but it is very probable they may be so occcasionally.

Creeping Bell-flower.

French, *Campanula Fausse Raiponce.* German, *Rapunzel Glockenblume.*

SPECIES V.—**CAMPANULA ROTUNDIFOLIA.** *Linn.*

PLATE DCCCLXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDCIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 2880.

Rootstock slightly creeping, very slender, elongated, much branched, without thickened radical fibres, sometimes stoloniferous. Stems slender, wiry, erect, often decumbent at the base, subglabrous, paniculately branched or simple. Radical leaves on long stalks, roundish or broadly-ovate, cordate or sub-cordate, crenate or serrate; lowest stem-leaves sometimes ovate or oblanceolate, the rest linear, subsessile or sessile, acute, entire; all glabrous, rarely more or less pubescent. Inflorescence a raceme or racemose panicle, definite, the terminal flower opening first, in small specimens reduced to a solitary terminal flower. Flowers slightly drooping. Peduncles 1-flowered, more rarely 2-flowered, very slender, without bracteoles, or with 1 or 2 very minute linear-subulate ones in the lower half. Calyx-tube glabrous; segments subulate, erect. Corolla widely campanulate, with the segments slightly recurved, about one-fourth the length of the whole corolla, roundish-ovate, sub-obtuse. Stigmas 3. Capsule nodding, opening by pores at the base of the calyx-tube.

Var. *α, genuina.*

PLATE DCCCL.

Stem-leaves all slender. Flowers usually numerous.

Var β, *montana.*

Lower stem-leaves elliptical-oblanceolate. Flowers usually solitary.

On heaths and pastures, &c. Very common, and generally distributed. Var. β on mountains.

England, Scotland, Ireland. Perennial. Late Summer and Autumn.

Stem 6 inches to 2 feet high, leafy below, very sparingly so in the upper half. Corolla $\frac{3}{4}$ to 1 inch long, pale-blue, slightly inclining to purple. Plant dark-green, nearly glabrous. Var. β, in its extreme states, appears very different, but is connected with the typical plant by insensible gradation.

Hare-bell.

French, *Campanula à Feuilles Radicales Rondes.* German, *Rundblättrige Glockenblume.*

Our very poetical English name for this pretty flower induces us to seek for something more attractive than the names we have just given for it in French and German. We find that in France it is also called Clochette, and in Germany Weisen Busch, or Milch Glocken.

No wild flower is more admired, or has had its praises sung by poets more frequently, than this pretty delicate little inhabitant of every sunny bank and heath of our country districts. Every village child loves its tiny bells, and numerous are the fancies associated with them. A common rustic name for them is "witches' thimbles," and it is certain that, like all enchantments, it will not bear the test of civilization, but droops and withers if removed from its native heath. Agriculturists tell us that the presence of the Hare-bell is indicative of very poor soil; yet how lovely are its tiny cups waving to and fro on their cobweb stems with every breath of wind, so that one might almost believe in the reality of the silver music said to come from them in days of yore, when the good fairies

"Rang their wildering chimes to vagrant butterflies."

This species we believe to be the true Hare-bell of Scotland. It is

"The hare-bell that, for her stainless azure blue,
Claims to be worn of none but those are true."

And it is the same which, in the "Lady of the Lake," beneath the fairy footsteps of Ellen Douglas,

"raised its head
Elastic from her airy tread."

"For me she stoop'd, and looking round,
Pluck'd a blue hare-bell from the ground.
This little flower, that loves the lea,
May well my simple emblem be."

SPECIES VI.—CAMPANULA PERSICIFOLIA. *Linn.*

PLATE DCCCLXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDCXIII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1269.

Rootstock slightly creeping, slender, much branched (without thickened radical fibres), stoloniferous. Stems rather slender, wiry, erect, glabrous, simple or more rarely slightly branched. Radical leaves narrowly oblanceolate, narrowed into indistinct winged petioles ; lower stem-leaves similar but much smaller ; intermediate and upper ones strapshaped, sessile ; all firm, flat, shining, glabrous, and very finely and remotely serrate or crenate-serrate. Inflorescence a short lax raceme, definite, the terminal flower opening first, often reduced to a single terminal flower. Flowers sub-erect. Peduncles 1-flowered, rather slender, with 2 bracteoles near the base. Calyx-tube glabrous or slightly hispid ; segments triangular-subulate, erect. Corolla cupshaped - campanulate, with the segments very slightly recurved, about one-fourth the length of the whole corolla, roundish-ovate, sub-obtuse. Stigmas 3. Capsule erect, opening by pores at the apex of the calyx-tube.

In woods near Cullen, Banffshire, but probably not wild, and on the north side of the Wharfe, at Thorp Arch, Yorkshire.

[England, Scotland.] Perennial. Summer.

Stem 9 to 18 inches high, sparingly leafy. Flowers pale bright-blue, often white, inversely hemispherical, with the bell 1 to 1¼ inch long, and quite as broad, in which it differs from all the preceding species, which have the corolla longer than broad. I have not seen British specimens.

Peach-leaved Bell-flower.

French, *Campanula Persicifolia.* German, *Pfirsichblättrige Glockenblume.*

When under the influence of cultivation, the flowers of this species often become double, white, and more numerous than when in its wild state. Both this and the next species have been used dietetically, but have fallen into disuse.

SPECIES VII.—CAMPANULA RAPUNCULUS. *Linn.*

PLATE DCCCLXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDCXIII. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 1035.

Biennial. Root thickened, fleshy, fusiform. Radical leaves obovate or spathulate, crenate, obtuse, abruptly contracted into rather short winged petioles, decaying before the stem appears. Stem erect, rather stout, slightly hispid, paniculately branched or simple. Stem-leaves numerous; lower ones oblanceolate, sub-petiolate, obtuse; intermediate ones sessile, oblong-strapshaped, sub-acute; the uppermost lanceolate-acute; all faintly crenate and undulated, puberulent or hispid. Inflorescence racemose in small specimens, paniculate in luxuriant ones, definite, the terminal flower opening first, or at least before the flowers in the upper half of the inflorescence. Flowers erect. Peduncles 1-flowered in stunted specimens, the lower ones several-flowered in luxuriant plants, very slender, rather short, with 2 or more subulate bracteoles near the base. Calyx-tube glabrous; segments linear-setaceous, entire, erect. Corolla campanulate, with the segments slightly recurved, nearly half the length of the whole corolla, ovate-lanceolate, sub-obtuse. Stigmas 3. Capsule erect, opening by pores at the apex of the calyx-tube.

By roadsides, hedges, and borders of fields. Rare, and possibly not indigenous, though perfectly established in Kent, Surrey, Worcester, Stafford, Warwick, and Denbigh, and also reported from several other counties, extending North to Cleveland, in Yorkshire.

England. Biennial. Summer.

Stem 2 to 3 feet high, with numerous leaves up to the inflorescence. Flowers generally very numerous, $\frac{3}{4}$ to 1 inch long, pale lilac-blue. In small specimens the inflorescence appears indefinite, except from the terminal flower opening long before its turn; in luxuriant specimens, where there are flowers in the axils of the bracteoles on the peduncles, the paniculate form of inflorescence is developed. Corolla more deeply divided than in any of the previous species; the calyx-segments are also longer and more slender than any of them, except C. rotundifolia, projecting beyond the buds before they open, and longer than the capsules. Plant yellowish-green, generally more or less hispid, but sometimes sub-glabrous.

Rampion Bell-flower.

French, *Campanula Raiponce.* German, *Rapunzel Glockenblume.*

The roots of this species were at one time eaten raw in salads, or boiled like asparagus. They were grown in gardens, blanched like celery.

SPECIES VIII.—CAMPANULA PATULA. *Linn.*

PLATE DCCCLXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDCXIV. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1034.

Biennial or annual. Root slender, not fleshy. Radical leaves oblong-oblanceolate, repand-crenate, sub-obtuse, on short indistinct winged petioles, decaying before flowering. Stem erect, rather stout, slightly hispid in the lower part, copiously corymbosely branched in the upper half. Stem-leaves rather numerous, oblong-strapshaped, acute; uppermost ones strapshaped-lanceolate, very acute; all very slightly repand-crenate, slightly hispid or sub-glabrous. Inflorescence corymbose, or a very lax panicle terminated by a corymb, definite, the terminal flower opening first. Flowers erect. Peduncles 1-flowered, or with 2 or 3 flowers racemosely arranged, slender, very long, with several linear-subulate bracteoles at equal distances along it. Calyx-tube glabrous; segments linear, subulate-serrulate, sub-erect. Corolla very widely funnel-shaped, campanulate, with the segments recurved-spreading, rather more than half the length of the whole corolla, ovate-lanceolate, sub-acute. Stigmas 3. Capsule erect, opening by pores at the apex of the calyx-tube.

In hedges and bushy places. Rather rare. In Dorset, Hants, Sussex, Kent, Surrey, Bucks, Derby, Notts, and most of the counties on the borders of Wales, where it occurs in Monmouth and Breckon; also in Yorkshire, and reported as far North as Westmoreland and Durham, but the two last on unconfirmed authority.

England. Perennial or annual. Summer and Autumn.

Stem 1 to 3 feet high, angular, with the angles hispid, much branched above, with the branches elongated-spreading. Stem-leaves similar to those of C. Rapunculus, but more acute and more uniform in shape, usually considerably smaller and more distant; the flowers, too, in C. patula are fewer, with much longer peduncles, and arranged in a very lax corymb with spreading branches, instead of a panicle or raceme. The corolla is about the same length, but much broader and more deeply divided than in C. Rapunculus, with the segments widely spreading and reflexed at the tips; the colour is nearly the same. The calyx-segments are not so long, broader at the base, and finely serrulate at the margins. The radical leaves are very different, being narrower and not abruptly contracted at the base, and the root is never thickened and fleshy as in the Rampion.

C. patula has been compared with C. rotundifolia; but I fail to perceive any close resemblance between the two species.

Spreading Bell-flower.

French, *Campanula Étalée.* German, *Ausgebreitete Glockenblume.*

SUB-GENUS II.—SPECULARIA. *Heist.*

Calyx-tube cylindrical-prismatic, not enlarged upwards. Corolla nearly rotate, with 5 shallow lobes. Capsule generally longer than the calyx-segments, wholly inferior, opening by short slits towards the apex of the calyx-tube.

SPECIES IX.—CAMPANULA HYBRIDA. *Linn.*

PLATE DCCCLXXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDCXVI. Fig. 4.

Billot, Fl. Gall. et Germ. Exsicc. No. 1272.

Specularia hybrida, *A. D. C.* Prod. Vol. VII. p 490. *Bab.* Man. Brit. Bot. ed. v. p. 212. *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 544. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 405. *Reich.* l. c.

Annual. Radical leaves roundish-spathulate, crenate, abruptly attenuated into very short petioles, decaying before flowering. Stem erect, or the lateral ones decumbent at the base, rather stout, hispid, paniculately branched in the upper half, and frequently also from the crown of the root. Stem-leaves rather distant, oblong, lowest attenuated at the base, the rest sessile, and generally semi-amplexicaul; all crenate and undulated on the margins, obtuse, hispid or puberulent. Inflorescence a slender interrupted sub-racemose panicle. Flowers erect, sessile, or very shortly stalked, terminating the stem and branches, solitary or 2 or 3 together, with leaflike bracts at the base of each. Calyx-tube hispid; segments elliptical, acute, ciliated, erect. Corolla nearly rotate, not above half the length of the calyx-segments, with 5 acute deltoid lobes about one-third the length of the whole corolla. Capsule prismatic, abruptly attenuated at the apex, twice to four times the length of the calyx-segments.

In cultivated fields in sandy and chalky soils. Not uncommon in the South and East of England; rare in the North, where it occurs in Yorkshire, and very local in Scotland, where it grows about Aberledy, in Haddingtonshire, and in Fifeshire.

England, Scotland. Annual. Summer and Autumn.

Stem solitary or several, from the crown of the root, erect, 3 to 18 inches high, rather wiry. Leaves small, rarely above 1 inch long, and generally less strongly undulated. Corolla inconspicuous, lilac outside, pale-purple within, about $\frac{1}{4}$ inch across, the sepals extending far beyond it and spreading in flower, but erect in fruit. Capsule $\frac{3}{4}$ to $1\frac{1}{2}$ inch long, finely hispid, somewhat resembling that of the Evening-primrose, but with the calyx-segments persistent, and the capsule itself 3-celled, and opening by 3 longitudinal clefts at the top. Seeds light-brown, oval, highly polished. Plant greyish-green, hispid or puberulent.

Small-flowered Venus' Looking-glass.

SUB-GENUS III.—WAHLENBERGIA. *Schrad.*

Calyx-tube turbinate or obconic, usually enlarged upwards. Corolla campanulate or funnel-shaped, with 3 to 5 rather shallow lobes. Capsule shorter than the calyx-segments, partially superior, opening by 3 valves, into which the portion above the calyx-segments splits.

SPECIES X.—**CAMPANULA HEDERACEA.** *Linn.*

PLATE DCCCLXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XIX. Tab. MDCXVII. Figs. 3, 4.

Billot, Fl. Gall. et Germ. Exsicc. No. 51.

Wahlenbergia hederacea, *Reich.* *D. C.* Prod. Vol. VII. p. 428. *Bab.* Man. Brit. Bot. ed. v. p. 212. *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 544. *Fries,* Sum. Veg. Scand. p. 11. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 421. *Reich. fil.* l. c.

Perennial. Rootstock creeping. Stems filiform, diffusely branched, prostrate. Leaves all stalked, roundish, sub-cordate, 5- to 7-angled or slightly lobed with the lobes shallow-deltoid, glabrous. Flowers at first drooping, afterwards erect, solitary. Peduncles terminal, and opposite the leaves, long, slender, 1-flowered. Calyx-tube glabrous; segments strapshaped-lanceolate, erect. Corolla cylindrical-bellshaped, 5-toothed at the apex, the teeth slightly recurved. Capsule globular, opening by 3 valves within the calyx-segments.

On damp heaths, bogs, and wet places. Rather rare, but pretty generally distributed in the South and West of the island as far North as Renfrew; rare on the Eastern side, where it occurs in Kent, Surrey, Essex, and Yorkshire.

England, Scotland, Ireland. Perennial. Late Summer and Autumn.

Stems numerous, very slender, interlacing, much branched. Leaves bearing considerable resemblance to those of Ivy in miniature, or still more to those of Linaria Cymbalaria, rarely above $\frac{1}{4}$ inch across, alternate, but the 2 uppermost ones or bracts (which are narrow, hastate or sub-rhomboidal) often opposite. Corolla $\frac{3}{8}$ inch long, much longer than broad, bright delicate blue. Capsule very small, globular, scarcely the half of it free. Plant pale-green, glabrous.

Ivy-leaved Bell-flower.

German, *Epheublättrige Wahlenbergie.*

This beautiful delicate little plant is as attractive as any of its predecessors,—not so much on account of its blossom as from the graceful manner of its growth, forming festoons of ivy-leaved wreaths around rocks, or trees, or any other object near which it is placed.

EXCLUDED SPECIES.

CAMPANULA SPECULUM. *Linn.*

This plant, the Specularia Speculum (Al. D. C.) of many authors, is said to have been sown in cornfields in the undercliff of the Isle of Wight by the late Dr. Bromfield: I am not aware if it still maintains its ground there.

ORDER XLIII.—ERICACEÆ.

Shrubs or small trees, very rarely herbs, with alternate or opposite or verticillate often evergreen leaves, without stipules: rarely leafless, and with fleshy scales. Flowers perfect, regular or nearly so, usually red, pink, purple, yellow or white, axillary or terminal, solitary or aggregated. Calyx regular, with 4 or 5 segments, generally free from the ovary, more rarely furnished with a tube which adheres to the ovary. Corolla regular, often sub-globular or ovoid, monopetalous with 4 or 5 lobes, more rarely of 4 or 5 distinct petals, inserted on the torus (hypogynous) when the ovary is superior, or at the summit of the calyx-tube when it is inferior. Stamens 8 or 10, rarely 4 or 5 (in the latter case alternate with the lobes of the corolla), inserted on the torus within the corolla; filaments not adhering to the lobes of the corolla, free, or rarely united towards the base; anthers 2-celled, free, almost always opening at the top by 2 pores, in one genus splitting transversely.

Ovary situated on a disk, superior or more rarely inferior, usually 4- or 5-celled : style 1, terminated by a capitate stigma ; ovules numerous, rarely few or solitary in each cell of the ovary. Fruit a capsule, opening by valves, or a berry. Seeds generally with a loose testa. Albumen fleshy.

SUB-ORDER I.—VACCINIEÆ.

Calyx-tube adhering to the ovary. Corolla deciduous, monopetalous. Ovary inferior, with an epigynous disk. Anthers not inflexed, 2-celled, opening by 2 pores, often spurred on the back; pollen-grains united in fours. Fruit a berry or drupe. Testa closely enveloping the seed.

Shrubs, with green leaves.

GENUS I.—VACCINIUM.

Calyx-tube adhering to the ovary. Limb of 4 or 5 teeth, more rarely nearly entire. Corolla urceolate, bell-shaped or rotate, with as many divisions as there are calyx-teeth. Stamens twice as many as the calyx-teeth, *i. e.* 8 or 10 ; anthers oblong, with 2 tubular horns at the apex, awnless or with 2 awns. Ovary inferior, 2- to 5-celled, generally with several ovules in each cell. Fruit a berry with numerous seeds.

Shrubs, with evergreen or deciduous leaves, and the flowers commonly solitary and axillary, or in small compact terminal racemes.

The name of this genus of plants is really an ancient Latin name, but whether of a berry or a flower has been a point in dispute among critics, as well as its etymology.

SECTION I.—OXYCOCCOS. *Tournef.*

Corolla rotate, divided nearly to the base into 4 reflexed segments. Filaments hairy. Anthers not awned. Leaves evergreen. Flowers solitary, on long slender pedicels.

SPECIES I.—VACCINIUM OXYCOCCOS. *Linn.*

PLATE DCCCLXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXIX. Fig. 4.
Billot, Fl. Gall. et Germ. Exsicc. No. 145.
Oxycoccos palustris, *Pers.* *D. C.* Prod. Vol. VII. p. 577. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 424.

Rootstock creeping. Stems filiform, prostrate, rooting at the base, much branched. Leaves very shortly stalked, ovate or lanceolate or elliptical, with rather broad revolute margins, entire, acute, deep shining-green above, glaucous beneath, glabrous. Flowers drooping, solitary or 2 to 5 together. Peduncles 1-flowered, erect, elongate, slender, pubescent, at length glabrous, springing from the extremity of the branches, with ovoid hooded scales at the base, and 2 small subscarious oblanceolate bracteoles below the middle. Calyx 4-toothed, with the teeth semicircular, ciliated. Corolla rotate, 4-partite, with the lobes oblong-strapshaped, reflexed. Anther-cells produced into 2 long tubes, with pores at the apex, without awns. Berry red.

In wet bogs. Rather thinly but widely distributed over the whole of Britain; most plentiful in the North of England and South of Scotland, extending North to Aberdeen, Eastern Ross, and Renfrewshire.

England, Scotland, Ireland. Shrub. Late Summer.

Stems wiry, varying in length, creeping amongst Sphagnum, with small spreading coriaceous evergreen leaves, rarely more than $\frac{1}{4}$ inch long. Pedicels $\frac{3}{4}$ to $1\frac{1}{2}$ inch long, red. Corolla scarcely $\frac{1}{4}$ inch long, dark-rose. Filaments very short, pubescent, purplish. Berries about the size of a red currant, but of a deeper colour. Plant glabrous, except the shoots of the year and the pedicels.

Marsh Cranberry.

French, *Airelle Canneberge.* German, *Moosbeere.*

The specific name of this plant appears to have been derived from two Greek words, *οξυς* (*oxus*), sharp, and κοκκος (*kokkos*), a berry, in reference to the sharp and acid taste of the berries. The common name Cranberry may have originated in the fact that the peduncles of the flowers are crooked at the top, and before the expansion of the flowers resemble the head and neck of a crane; or it may be that the fruit is much eaten by cranes in the low marshy spots where it grows. From very ancient times Cranberries have been used for culinary purposes. In summer they form a cool and refreshing drink, and in winter they are made into tarts and pies. Large quantities of the fruit are imported from Russia and Sweden packed in tubs: those grown there are larger and of a brighter colour than ours, and possess less of a medicinal flavour. During the latter part of the last century, Cranberries from Lincolnshire and the north-west corner of Norfolk were sold in the streets of Norwich by cartloads; but the agricultural improvements in these counties have destroyed their native bogs, and we now seldom see English Cranberries in the market.

M'Culloch tells us that from Russia and America we annually import from 30,000 to 35,000 gallons of Cranberries. The berries are powerfully acid and astringent, and have a peculiar flavour very much liked by some people. If carefully bottled, Cranberries will keep for several years, or they will keep in casks of water, as adopted in America. Pallas informs us that in Russia the bankers take advantage of the sharp acid of the fruit to whiten their silver money, which they boil in the juice, and so get rid of superficial particles of the copper alloy. In Sweden the same thing is done to whiten silver plate. In Siberia ropes are made of the long slender stems of the plant. The Cranberry may easily be cultivated wherever a supply of water exists. It must be planted in a layer of black peat, rising a little above the surface of the water, which should have access to the roots of the plant, as it delights in wet bogs. On the margin of a pond, or by a slow stream, where the water is only a few inches deep, a suitable soil may easily be formed by laying peat-earth over stones or clay, and the Cranberries may be planted or sown on the moist surface. Every little bit of stem will easily strike root, so that the propagation of the plant by layers or cuttings is very easy. On sandy peat-soil it grows very luxuriantly, and it is said that the fruit produced by cultivation is of a better flavour than that gathered from the wild bushes.

SECTION II.—VITIS-IDÆA. *Tournef.*

Corolla bell-shaped, divided one-third of the way down or less into 5 recurved lobes. Flowers in short bracteate nodding racemes. Filaments hairy. Anthers not awned. Leaves evergreen.

SPECIES II.—**VACCINIUM VITIS-IDÆA.** *Linn.*

PLATE DCCCLXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXVIII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1708.

Rootstock creeping. Stems erect or ascending, stiff, slightly branched. Leaves very shortly stalked, oblanceolate or obovate, waved, with very narrow revolute margins, obtuse, deep shining-green above, paler and glandular-punctate but not reticulate-veined beneath, glabrous. Flowers drooping, 5 to 12 together, in short drooping racemes at the extremity of the branches. Pedicels very short, curved, stout, pubescent, springing from the axils of ovate-hooded bracts, and with 1 or 2 similar but smaller bracteoles about the middle. Calyx 4-toothed, with the segments broadly-ovate, ciliated. Corolla campanulate, with 4 ovate reflexed segments, about one-third the length of the whole corolla. Anther-cells produced into 2 long tubes, with pores at the apex, without awns. Berry red.

On heaths and heathy woods. Not uncommon in the North of England and Scotland, extending from Glamorgan, Worcester, Warwick, and Notts, North to the Hebrides and Sutherland.

England, Scotland, Ireland. Shrub. Summer.

Stems wiry, 3 to 10 inches high, with the leaves bifarious close together, coriaceous, evergreen, $\frac{1}{2}$ to $1\frac{1}{2}$ inch long, somewhat resembling those of the Box, but paler green, and with the veins more impressed on the upper side, the lower side not reticulate-veined, but dotted with small glands. Racemes $\frac{1}{2}$ to 1 inch long, terminal. Flowers about $\frac{1}{4}$ inch long, white or pale rose-colour. Calyx red. Stamens included. Style exserted. Berries about the size of red currants, but rather darker in colour. Plant glabrous, except the shoots of the year, peduncles, margins of the leaf at the base, rachis, and pedicels.

Red Whortleberry.

French, *Airelle Ponctuée.* German, *Preisselbeere.*

This plant has also the common English names of Mount-Ida Berry and Cowberry. It is a pretty little low evergreen shrub, growing from six to ten inches high, with leaves like those of box, only of a brighter and more glossy green. It bears its small bell-shaped flowers in drooping racemes, and the fruit which follows is a pretty shining black berry, which is retained on the plant for many months. It forms an exceedingly pretty edging in a garden instead of box, wherever clipping can be dispensed with, and is particularly applicable to American borders, or anywhere in peat soil. The berries form an important article of commerce in the sea-ports bordering the Gulf of Bothnia, whence they are sent to the South of Europe with cranberries. The berries are not much eaten in the districts of Great Britain where they are found, but in Sweden they are greatly valued. When first gathered, the berries are very tasteless, but after exposure to frost they become very acid. They are usually thrown into water on being gathered, where they soon acquire their proper flavour, and keep a long time. Quantities are sold in London as cranberries, imported as such from Sweden. In Derbyshire the berries are often made into pies, and in Sweden a rob, or jelly, is made from them, which is eaten commonly with roast meat, and considered preferable to currant-jelly. As a remedy for coughs, colds, and sore throats, the preserved fruit has a great local reputation. Sweetmeats are made of the berries with honey or sugar, which in 1814, Mr. Loudon tells us, were in frequent use in Moscow at balls and masquerades.

SECTION III.—EU-VACCINIUM. *Torrey.*

Corolla globular or ovoid, sub-urceolate, 4- or 5-toothed. Filaments smooth. Anthers awned. Leaves deciduous. Flowers axillary, solitary, or 2 or 3 together.

SPECIES III.—VACCINIUM ULIGINOSUM. *Linn.*

PLATE DCCCLXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXVIII. Figs. 3, 4.
Billot, Fl. Gall. et Germ. Exsicc. No. 1527.

Rootstock creeping. Stems erect or ascending, very rigid, very woody, much branched. Leaves very shortly stalked, obovate or elliptical or oval-obovate, obtuse or sub-obtuse, entire, pale glaucous-green above, very glaucous and netted-veined below, but not dotted with glands, glabrous. Flowers drooping, solitary or 2 or 3 together, apparently lateral, but really at the termination of the branches of the preceding year. Peduncles 1-flowered, rather slender, short, straight, glabrous, surrounded by hooded scarious oval bracts at the base, destitute of bracteoles. Calyx 4- or 5-toothed, with the teeth semicircular, glabrous. Corolla ovate-urceolate, with 4 or 5 short ovate reflexed teeth. Anther-cells produced into short tubes at the apex, with 2 curved awns on the back. Berry bluish-black, pruinose-glaucous.

In bogs and on wet ledges of rocks in mountainous districts in the North of England and Scotland; rather common in the Highlands, extending from Durham and Westmoreland to Shetland.

England, Scotland. Shrub. Summer.

Stems rigid, 6 to 18 incehs high, bare of leaves below. Leaves ½ to 1 inch long, sub-coriaceous, deciduous, pale dull glaucous-green, especially beneath, where the veins are glabrous, prominent, and form a network with large meshes. Flowers at the termination of the branches of the preceding season, but usually appearing lateral from the shoot of the year being continued beyond them from a bud close beneath the inflorescence-buds. Peduncles longer than the flowers. Calyx red. Corolla scarcely ¼ inch long, white or pale-rose. Berries about the size of black currants, covered with a bloom like that on the Sloe. Plant glabrous.

Great Bilberry.

French, *Airelle Veinée.* German, *Rauschbeere.*

The berries of this species have somewhat the flavour of the rest, but, eaten in any quantity, they occasion headache and giddiness. In France they are said to be used for colouring wines red, and in Siberia and Sweden they furnish an ardent spirit by distillation. They afford excellent food to game. The leaves are added to Lycopodium alpinum by the islanders, and a yellow dye for colouring woollens is produced by an infusion of the two plants.

SPECIES IV.—**VACCINIUM MYRTILLUS.** *Linn.*

PLATE DCCCLXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXIX. Fig. 1–3.
Billot, Fl. Gall. et Germ. Exsicc. No. 52.

Rootstock creeping. Stems erect or ascending, rather stiff, woody below, much branched. Leaves very shortly stalked, oval or oval-lanceolate, acute, serrate, green on both sides, paler below,

with an inconspicuous network of veins, but without glandular dots, glabrous. Flowers drooping, solitary, from the axils of leaves on the shoots of the year. Peduncles 1-flowered, rather slender, short, curved close to the base (where there are deciduous ovate hooded bracts), destitute of bracteoles, glabrous or puberulent. Calyx-limb nearly entire, glabrous. Corolla globular-urceolate, with 5 very short reflexed teeth. Anther-cells produced into short tubes at the apex, and with 2 curved awns on the back. Berry purplish-black, pruinose-glaucous.

On heaths and in woods, especially in mountainous districts. Common, and generally distributed, though scarce in the South-east of England.

England, Scotland, Ireland. Shrub. Early Summer.

Stem 6 inches to 2 feet high, bare of leaves towards the base, the younger branches angular. Leaves deciduous, ½ to 1 inch long, rather flaccid, shining, with the veins apparent beneath but by nomeans prominent or discolorous. Flowers appearing with the young leaves, rose, tinged with green. Calyx green. Stamens included. Style exserted. Peduncles longer than the corolla. Berry about the size of a red currant, globular, somewhat truncate at the apex, with a bloom resembling that on the Sloe. Plant glabrous.

Common Bilberry.

French, *Airelle Anguleuse.* German, *Gemeine Heidelbeere.*

This well-known shrub is also known as the Bleaberry, and is much admired for its pretty bright foliage, and its urn-shaped flowers of a pinkish waxlike appearance. The berries which follow them are of a bluish-black colour, covered with a mealy bloom. They are used much in the same manner as the fruit of the other species of Vaccinium—in tarts or jam, or made into jelly. In Devonshire they are eaten with clotted cream; in Poland they are mixed with wild strawberries, and eaten with new milk as a great delicacy. Their juice has been employed to stain paper or linen purple. Many kinds of game live upon the berries, but the grouse is especially fond of them.

SUB-ORDER II.—ERICINEÆ.

Calyx wholly free from the ovary. Corolla persistent or deciduous, monopetalous, or rarely of 5 to 7 distinct petals. Ovary superior, with a hypogynous disk. Anthers 2-celled, opening by 2 pores (rarely by longitudinal slits), often awned or spurred at the base. Pollen-grains united in fours. Fruit a capsule or berry. Testa closely investing the seed.

Shrubs, with green, often evergreen, leaves.

TRIBE I.—ARBUTEÆ.

Corolla deciduous. Fruit a berry, superior.

GENUS II.—ARCTOSTAPHYLOS. *Adans.*

Calyx free from the ovary, 5- or 4-partite. Corolla hypogynous, deciduous, monopetalous, globose- or ovate-urceolate or urceolate-bellshaped, with as many teeth as there are divisions in the calyx. Stamens 10 or 8; filaments short; anthers bent down, appearing as if affixed by the apex, each one with 2 pores and 2 awns close to the point of attachment. Fruit a berry-like drupe, containing 5 bony 1-seeded pyrenes or stones; surface of the drupe smooth.

Small shrubs or undershrubs, with alternate obovate entire or serrate evergreen or deciduous leaves, and pink or white flowers in short terminal racemes. Inflorescence-buds scaly.

The derivation of the name of this genus of plants is from *αρκτος* (*arktos*), a bear, and *σταφυλη* (*staphulé*), a grape.

SPECIES I.—ARCTOSTAPHYLOS ALPINA. *Spreng.*

PLATE DCCCLXXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXVII. Fig. 4.
Arbutus alpina; *Linn.* *Sm.* Eng. Bot. No. 2030.

Stems procumbent. Shoots of the year glabrous. Leaves rather thin, deciduous, wedgeshaped-obovate or -oblanceolate, narrowed into indistinct winged petioles, sub-acute, doubly crenate-serrate in the apical half, glabrous, sparingly ciliated with bristly hairs, shining-green, with the veins impressed above, slightly glaucous and with the veins prominent and forming coarse network beneath. Flower drooping, 2 or 3 together at the summit of the branches of the preceding year, appearing with the young leaves or before them. Pedicels short, longer than the bracts. Bracts scarious, oval, boat-shaped, and ciliated. Corolla broadly ovate-urceolate, with 4 or 5 short reflexed obtuse teeth, which are hairy within. Appendages of the anthers very short. Berry smooth, bluish-black, slightly-shining.

On heaths and barren places on mountains. Rare. Near the summit of the mountain to the South of Bradoonie, Clova, Forfarshire; on Ben Nevis, near the Lake; in the Isle of Skye; in

Moray; Ben Wyvis, and several other places in Ross-shire; not uncommon in Sutherland, and in the Isle of Hoy, Orkney; Ronas Hill, Shetland. The specimen figured in "English Botany" was said to be found near the head of Loch Traig, Perthshire, by Mr. G. Don; but I cannot find any indication of its recent occurrence in that county.

Scotland. Shrub. Early Summer.

Stems variable in length, rather thick, with smooth brown bark, splitting off in patches, and somewhat scaly; young shoots red. Leaves crowded, ½ to 1¼ inch long, rugose above, often tinged with red, obovate, gradually attenuated into a wedgeshaped base, which passes imperceptibly into the very short petiole. Flowers about ¼ inch long, white tinged with green. Anthers chocolate-brown. Berry about the size of a black currant, bluish-black.

Alpine Bearberry.

French, *Arbousier des Alpes.* German, *Bärentraube.*

The common name of Bearberry may have been given to this plant either from the notion that bears eat the fruit, or from its very acerb and unpleasant nature.

SPECIES II.—**ARCTOSTAPHYLOS UVA-URSI.** *Wimm.*

PLATE DCCCLXXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXLVII. Fig. 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 1706.
Arbutus Uva-ursi, *Linn.* *Sm.* Eng. Bot. No. 714.

Stems procumbent; shoots of the year pubescent. Leaves coriaceous, evergreen, obovate or oblanceolate, obtuse or sub-acute, very shortly stalked, entire, glabrous, thickly ciliated with very short woolly hairs, smooth and dark shining-green, with the veins slightly impressed above, pale-green and with the veins prominent and forming a coarse network beneath, minutely dotted on both sides when dry. Flowers drooping, aggregated in short crowded racemes, of from 3 to 15 flowers, at the apex of the branches of the preceding year, appearing before the young leaves. Pedicels short, about as long as the bracts. Bracts scarious, lanceolate, ciliated. Corolla ovate-urceolate, with 4 or 5 short reflexed obtuse teeth, which are hairy within. Appendages of the anthers nearly as long as the filaments. Berry smooth, scarlet-red, shining.

On heaths and barren places in hilly districts. Not uncommon. From Derby, York, Westmoreland, and Cumberland, northward to Orkney and Shetland.

England, Scotland, Ireland. Shrub. Early Summer.

Stem branched, woody, with brown bark, peeling off as in A. alpina. Leaves ½ to 1 inch long, very thick and leathery; bearing some resemblance to those of Vaccinium Vitis-idæa, but more coriaceous, with the margin not reflexed, and the under side beautifully netted with prominent veins, and without glandular dots. Calyx-segments very broadly ovate, scarious, reddish. Corolla pale-rose with the tip darker. Anthers chocolate-brown. Berry the size of a small currant, very bright-red, with a tough skin.

Common Bearberry.

French, *Arbousier Busserole.* German, *Gemeine Bärentraube.*

The leaves of the Bearberry are powerfully astringent, and are of so potent a character as to secure for the plant a place not only in the old herbals of our country, but in the modern Pharmacopœias, including the recent edition of the British Pharmacopœia. They contain a large quantity of tannin. Meipher found the dried leaves to contain 36·4 per cent. of tannin, with a little gum, resin extractive, and other unimportant ingredients. An extract of these leaves has long been valued for its beneficial action on various organs of the body. In diseases of the kidneys and mucous membranes it is highly esteemed, and it appears to have a soothing as well as astringent effect. Unfortunately the leaves are often adulterated with those of the cowberry, which may, however, be distinguished by the glandular dots on the under surface, and the minute serratures on the edge. The berries form an excellent food for game of all kinds, and in Sweden the leaves are used for tanning leather. An ash-coloured dye is said to be obtained from the plant in Scandinavian countries.

GENUS III.—ARBUTUS. *Tournef.*

Calyx free from the ovary, 5-partite. Corolla hypogynous, deciduous, monopetalous, globose- or ovoid-urceolate, with 5 reflexed teeth. Stamens 10; filaments short; anthers bent down, appearing as if affixed by the apex, each one with 2 pores and 2 awns close to the point of attachment. Fruit a berry, with 5 cells, each containing several seeds; surface of the berry rough, with projecting points.

Shrubs or small trees, with alternate obovate entire or serrate evergreen leaves, and white or pink flowers in terminal panicles. Inflorescence-buds scaly.

The name of this genus of plants is probably derived from *arbustum*, a group of trees, from its shrubby habit.

SPECIES I.—ARBUTUS UNEDO. *Linn.*

PLATE DCCCLXXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXVII. Figs. 1 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 2708.

A small tree with rough bark. Shoots of the year hairy, with long gland-tipped hairs. Leaves evergreen, elliptical-oblanceolate or -obovate, very shortly stalked, acute, sharply and doubly serrate, glabrous, with a few gland-tipped hairs on the edge and on the petioles, green on both sides, paler beneath, with the veins inconspicuous both above and beneath. Flowers numerous, in terminal drooping lax panicles. Peduncles and pedicels glabrous. Calyx-lobes ciliated. Corolla ovate-urceolate, with 5 reflexed semicircular ciliated teeth. Anthers with the appendages about as long as the filaments. Berry papillose-muricated, scarlet-red.

About the lakes of Killarney; in woods at Muckross, and at Glen Gariff, near Bantry. Professor Babington considers it truly wild at Killarney. I have seen it on the islands in Lough Gill, co. Sligo, but there it had no doubt been planted.

Ireland. Shrub or tree. Autumn and Winter.

A small tree, rarely over 6 or 8 feet high, with spreading branches. Leaves 1½ to 3 inches long, slightly shining, the midrib generally tinged with red, especially at the base. Corolla cream-colour, ⅜ to ½ inch long. Berry a little larger than a cherry, dim crimson-scarlet, with the surface roughened with long pointed tubercles. The fruit is not mature until the autumn succeeding that in which the flower was produced.

Strawberry-tree.

French, *Arbousier Fraisier*. German, *Bärentraube.*

This tree is well known as an ornament of the shrubbery, and is an attractive object at every season of the year. In the autumn it is seen covered with its white bellshaped flowers, slightly tinged with pink, intermixed with its strawberry-like fruit, which, owing to the length of time it takes to ripen, remains on the trees for twelve months. The Arbutus was known to the Greeks and Romans, but, according to Pliny, was not held in much esteem; for, as the specific name implies, the fruit was considered so unpleasant, that only one could be eaten at a time. There can be no doubt, however, that at one time the fruit was an article of diet with the ancients, and at the present time the Irish peasantry around Killarney, where it grows extensively, collect and eat the berries. Virgil recommends the young shoots as winter food for goats, and as fit for basket-work. Horace praises the tree for its shade, and Ovid celebrates its loads of "blushing fruit." Gerarde speaks of it in his time as growing in "some few gardens," and says, "the fruit being ripe is of a gallant red colour, in taste somewhat harsh, and in a manner without any rellish, of which thrushes and blackbirds do feed in winter." Many writers have celebrated its beauty in verse. Mrs. Barbauld writes of

> "The arbutus rearing his scarlet fruit,
> Luxuriant mantling o'er the craggy steeps."

And we read of

> "Arbutus, with his scarlet grain,
> That richly crowns Irene's plain."

In Spain a sugar and tolerable spirit are extracted from the fruit, and in Corsica a wine is fermented from it. In the neighbourhood of Algiers it forms hedges, and in Greece and Spain the bark is used by tanners, and the charcoal made from the wood is highly valued. No plant is more worthy of a place in gardens and ornamental plantations than the Arbutus—the durability and beauty of its shining green leaves, the brownish-red colour of its young shoots, the waxy and delicate appearance of its flowers, which are produced in abundance at a season when most plants are beginning to shed their leaves, and the splendour of its bright-red fruit, which often remains on during all the winter—all render it a most desirable plant. It will thrive in any tolerably free soil, though a sandy loam appears to suit it best.

TRIBE II.—ANDROMEDEÆ.

Corolla deciduous. Fruit a capsule, superior.

GENUS IV.—ANDROMEDA. *Linn.*

Calyx free from the ovary, 5-cleft or 5-partite. Corolla hypogynous, deciduous, monopetalous, globose- or ovoid-urceolate or urceolate-campanulate, with 5 reflexed teeth. Stamens 10; filaments subulate; anthers with 2 horns at the apex, or obtuse, generally without awns, but sometimes these are present. Fruit a capsule, with 5 cells opening loculicidally by 5 valves breaking away from the central placental column, and bearing the dissepiments attached along the middle of each valve. Seeds very numerous.

Shrubs, undershrubs, or trees, with various habit, with the flower resembling those of Arbutus; but the fruit is always a dry capsule. Inflorescence-buds scaly. It is now usually divided into numerous genera, but on insufficient characters.

The name of this genus of plants was given to it fancifully, either from the constellation of the same name, or, according to Linnæus, in allusion to the mythological legend of the Princess Andromeda, who was doomed to pine away on a desolate rock, but was rescued by Perseus; a curious and ingenious application of the fable to the plant, rather far-fetched, for the plant grows and lives in damp low places, instead of being attached to a rock.

SPECIES I.—ANDROMEDA POLIFOLIA. *Linn.*

PLATE DCCCLXXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCXLI. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 270.

Stems erect or ascending, slender. Leaves elliptical or oval, attenuated at each end, but generally more so towards the base, very shortly stalked, acute, with revolute entire margins, glabrous, shining-green above, glaucous-white beneath, with the midrib glabrous and prominent. Flowers drooping, in a sub-umbellate raceme, 2 to 8 at the extremity of the branches of the preceding year. Pedicels long, slender, 1-flowered, with oval scarious bracts at the base, but no bracteoles. Corolla globular-ovate-urceolate, with 5 small revolute acute teeth. Anthers with an awn from the back of each cell; cells not produced into tubes.

In peat bogs and on damp moors in the counties of Somerset, Hants, Stafford, Salop, Glamorgan, Denbigh, Chester, York, Lancaster, the North of England and South of Scotland, not extending North of Perth and Renfrew.

England, Scotland, Ireland. Shrub. Early Summer and Autumn.

Stems wiry, 3 to 18 inches long, clothed with slender radical fibres at the base, and with smooth brownish bark. Leaves bearing much resemblance to those of Salix fusca, ¾ to 1½ inch long, very variable in breadth, though this, to some extent, no doubt depends how much of the margin is rolled back. Pedicels ½ to ¾ inch long, red. Calyx purple, deeply 5-cleft, with the lobes lanceolate. Corolla ¼ inch long, bright-rose. Capsule erect, sub-globular, pentagonal, very dark-purple, glaucous.

Marsh Andromeda, Wild Rosemary.

French, *Andromède à Feuilles de Polium.* German, *Poleyblättrige Gränke.*

This is a well-known common plant in northern bogs, with pretty pink flowers, somewhat like those of the heath, with lanceolate leaves. It is astringent in its nature, and has been used as a substitute for galls. It is said to be narcotic, or, at least, to give an intoxicating property to liquids in which it is infused. It is also alleged to have been destructive to cattle and sheep that have fed upon it; but, as it always grows in bogs and marshes, it is probable that the situation is more to blame than the plant for their death.

GENUS V.—LOISELEURIA. *Desv.*

Calyx free from the ovary, 5-partite. Corolla hypogynous, deciduous, monopetalous, regular, widely funnelshaped-bellshaped, 5-lobed. Stamens 5, nearly free from the corolla, included. Anthers obtuse at the apex, opening by longitudinal slits, without awns. Style straight, included. Fruit a capsule, with 2 or 3 cells opening septicidally, with 2 or 3 valves separating at the apex at the partitions. Seeds numerous.

A small prostrate diffusely-branched shrub, with opposite evergreen coreaceous leaves and small pink flowers with red calyces.

This genus is named after the celebrated French botanist Loiseleur-Deslongchamps, who published a Flora of France in 1810.

SPECIES I.—**LOISELEURIA PROCUMBENS.** *Desv.*

PLATE DCCCLXXXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLIX.

Billot, Fl. Gall. et Germ. Exsicc. No. 2710.

Azalea procumbens, *Linn.* *Sm.* Eng. Bot. No. 865. *Bab.* Man. Brit. Bot. ed. v. p. 217. *Hook. & Arn.* Brit. Fl. ed. viii. p. 273. *Fries,* Sum. Veg. Scand. p. 49. *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 548. *Reich. fil.* l. c.

The only species.

In barren rocky places on mountains in the Scotch Highlands; from Stirling and Perthshire northwards, extending to Sutherland, Orkney, and Shetland.

Scotland. Shrub. Late Summer.

A small much-branched prostrate shrub, growing in dense mats. Stems woody, rooting, tortuous, diffusely branched, with dull-brown bark splitting off in scales. Shoots of the year glabrous. Leaves opposite, crowded, $\frac{1}{8}$ to $\frac{1}{4}$ inch long, coriaceous, evergreen, oblong-oval, attenuated into short indistinct petioles, with the margins very broadly revolute, dark-green, shining, glabrous, and with the midrib impressed above, densely felted with short white wool beneath, with the midrib very thick, prominent, glabrous, leaving only a slender strip of the felted portion visible between it and the reflected part of the margin. Flowers erect, 2 to 5, in an umbellate raceme. Pedicels red, $\frac{1}{8}$ to $\frac{1}{4}$ inch long, with sub-herbaceous ovate bracts (which are woolly within) at the base, destitute of bracteoles. Calyx red, 4-partite. Segments oblong-lanceolate, blunt. Corolla pink, regular, widely funnel-shaped, $\frac{1}{6}$ inch across, 5-cleft, with the lobes oblong, obtuse. Stamens 5, included, without appendages; anthers opening by clefts instead of merely pores, as is usually the case in the Ericaceæ. Capsule sub-globular, acuminated, crimson, about the size of a hemp-seed, splitting at the apex into 2 or 3 valves, each of which is again split at the apex.

Trailing Azalea.

French, *Azalée Couchée.*

This plant is abundant in the North, on most of the Scottish Highland mountains, among grass and moss, and nowhere more plentiful than on the Cairn-gourm range, where it forms large dark-green patches.

GENUS VI.—MENZIESIA. *Smith.*

Calyx free from the ovary, 4- or 5-cleft or -partite. Corolla hypogynous, deciduous, monopetalous, globose- or ovoid-urceolate, with as many erect or reflexed teeth as there are segments of the calyx. Stamens twice as many as the calyx-segments, *i. e.* 8 or 10; filaments subulate; anthers with 2 horns, or obtuse at the apex, generally without awns, but sometimes these are present. Fruit a capsule, with 4 or 5 cells opening septicidally by 4 or 5 valves breaking away from the central placental column, the valves separating at the dissepiments. Seeds very numerous.

Heathlike shrubs or undershrubs, with alternate leaves, and blue, pink, or crimson flowers in terminal racemes.

This genus of plants was named in honour of Archibald Menzies, F.L.S., surgeon and naturalist to the expedition under Vancouver, in which he collected many specimens of plants on the north-west coast of America, New Holland, Van Diemen's Land, &c.

SUB-GENUS I.—DABOECIA. *Don.*

Calyx deeply 4-cleft. Corolla-limb 4-toothed. Stamens 8; filaments flattened, shorter than the anthers; anthers elongated, sagittate at the base; cells obliquely truncate, and separated at the apex. Stigma truncate, indistinctly 4-lobed. Capsule 4-celled, 4-valved.

SPECIES I.—MENZIESIA POLIFOLIA. *Juss.*

PLATE DCCCLXXXV.

Daboecia polifolia, *Don.* *Bab.* Man. Brit. Bot. ed. v. p. 217. *D. C.* Prod. Vol. VII. p. 713. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 434.
Erica Daboecii, *Linn.* Sp. Pl. p. 509.
E. Dabeoci, *Sm.* Eng. Bot. No. 35.
Andromeda Daboecia, *Linn.* Syst. Veg. ed. xiii. p. 338.

Leaves evergreen, ovate-oval or -elliptical, apiculate, with revolute entire margins, dark-green and sparingly clothed with gland-tipped hairs above, densely felted with pure-white wool beneath, where the midrib is prominent and glabrous in the basal half. Flowers in terminal lax racemes. Pedicels shorter than the corolla, with strapshaped herbaceous bracts at the base. Calyx deeply 4-cleft. Corolla 4-toothed. Stamens 8; anthers sagittate at the base. Plant wholly pubescent, with gland-tipped hairs, except the under sides of the leaves.

On boggy heaths in the West of Ireland; abundant in Connemara, on Croagh Patrick, co. Mayo.

Ireland. Shrub. Summer.

Rootstock creeping. Stem woody, with brown bark splitting off in flakes, decumbent at the base, then erect, 9 inches to 2 feet high, branched, with the branches mostly simple, erect, and, as well as the rachis and pedicels, finely pubescent, and clothed with long gland-tipped hairs. Leaves very numerous, ¼ to ½ inch long, when young very narrow, from the margins being much rolled back, but becoming apparently broader when old by the margins unfolding; axils of the leaves generally with fascicles of smaller leaves. Flowers 3 to 16, drooping, sub-secund, in an elongated raceme. Calyx-segments lanceolate, triangular, pubescent, and with long gland-tipped hairs. Corolla crimson-purple, ½ to ⅝ inch long, broadly ovate-ovoid, sub-urceolate, with 4 short obtuse slightly-reflexed lobes clothed with a few gland-tipped hairs. Anthers included, dark-purple, very long. Capsule erect, ovoid-conical, clothed with long gland-tipped hairs.

St. Dabeois Heath.

French, *Menziése Dabéoie.*

SUB-GENUS II.—PHYLLODOCE. *Salisb.*

Calyx deeply 5-cleft. Corolla-limb 5-toothed. Stamens 10; filaments slender, longer than the anthers; anthers rather short, rounded at the base; cells truncate at the apex. Stigma peltate, with 5 tubercles. Capsule 5-celled, 5-valved.

SPECIES II.—**MENZIESIA CÆRULEA.** *Swartz.*

PLATE DCCCLXXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLX. Fig. 3.

Phyllodoce cærulea, *Bab.* Man. Brit. Bot. ed. v. p. 216. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 434.

Phyllodoce taxifolia, *Salisb.* *D. C.* Prod. Vol. VII. p. 713.

Andromeda cærulea, *Linn.* Sp. Pl. p. 563.

Erica cærulea, *Willdenow,* Sp. Pl. Vol. II. p. 393.

Leaves evergreen, strap-shaped, obtuse, with the margins very finely serrulate, not revolute, green on both sides, glabrous above and below, except the midrib, which is pubescent. Flowers in terminal umbellate racemes. Pedicels longer than the corolla, without bracteoles. Calyx deeply 5-cleft. Corolla 5-toothed. Stamens 10; anthers obtuse at the base. Plant sub-glabrous, except the peduncles, calyx-segments, and capsule, which are clothed with gland-tipped hairs.

On heathy moors. Very rare. On the Sow of Atholl, in the North of Perthshire, where it was believed to be extinct, until Professor Balfour rediscovered it in 1863.

Scotland. Shrub. Summer.

A small much-branched shrub, with the stems rarely above 6 inches high, decumbent at the base. Shoots of the year glabrous. Leaves crowded, spreading. Pedicels $\frac{3}{4}$ to $1\frac{1}{2}$ inch long. Flowers drooping, about $\frac{1}{2}$ inch long, pinkish-lilac.

Of this plant I have not seen British specimens in flower or fruit.

Yew-leaved Menziesia.

TRIBE III.—ERICEÆ.

Corolla persistent, withering. The flower-buds not combined into scaly inflorescence-buds.

GENUS VII.—**ERICA.** *Linn.*

Calyx free from the ovary, 4-cleft or -partite. Corolla hypogynous, persistent and withering, monopetalous, oval- or globose-urceolate or cylindrical or bell-shaped, with 4 erect or spreading or revolute teeth, or more rarely 4 lobes. Stamens 8, included or inserted; filaments free; anthers often with 2 awns or crests at the base, opening by 2 pores or chinks at the apex. Fruit a capsule, with 4 cells opening loculicidally by 4 valves breaking away from the central placental column, to which a portion of each dissepiment remains attached, while the remaining portion is borne down the middle of the valve. Seeds very numerous.

Shrubs, generally much branched, with linear verticillate or more rarely alternate rigid evergreen leaves, and usually drooping flowers, variously disposed, generally showy.

The name of this genus of plants is derived from the word ερεικω (*ereiko*), I break, from the idea that some of the species destroy the stones formed by lithic acid in the human body.

SUB-GENUS I.—EU-ERICA. *Benth.*

Anthers lateral, with the filaments affixed to the back. Corolla ovate-urceolate or campanulate or globose, with an erect or spreading-recurved limb.

SPECIES I.—ERICA CILIARIS. *Linn.*

PLATE DCCCLXXXVII.

Billot, Fl. Gall. et Germ. Exsicc. No. 1036.

Stems with numerous short barren branches, which, as well as the main stem, are pubescent, with the pubescence intermixed with gland-tipped hairs. Leaves regularly whorled, 4 in a whorl, very shortly stalked, ovate, with revolute margins, pubescent above, glaucous with white stellate scales beneath except on the midrib which is pubescent, ciliated with long gland-tipped hairs, usually without fascicles of leaves in the axils. Flowers slightly drooping, very shortly stalked, in elongated dense terminal secund spike-like racemes. Pedicels about as long as the calyx, with a leaflike bracteole about the middle, and a leaflike bract at the base. Calyx-segments herbaceous, oblong-lanceolate, ciliated with gland-tipped hairs. Corolla four to six times as long as the calyx, ovate-urceolate-cylindrical, slightly curved downwards, with 4 very short deltoid teeth at the apex. Anthers included, without awns. Style exserted. Capsule glabrous.

In sandy heaths about Penryn, Truro, and St. Agnes, Cornwall; between Arne and Corfe, Dorset; near Clifden, Galway.

England, Ireland. Shrub. Late Summer
and Autumn.

Stems wiry, 9 inches to 1 foot high, with numerous short barren branches gradually decreasing in length the higher they are on the stems. Leaves 4-farious, about $\frac{1}{8}$ inch long, in distant whorls on the stem, but crowded on the barren branches; leaves or bracts of the raceme similar to the leaves, but narrower, and attenuated towards the base. Corolla rosy-crimson, paler on the lower side, $\frac{3}{8}$ to $\frac{1}{2}$ inch long, ventricose on the upper side, with the mouth oblique and slightly contracted. Valves of the capsule splitting down the back of each cell. Plant dark-green.

Fringed-leaved Heath.

SPECIES II.—**ERICA TETRALIX.** *Linn. Benth.*

PLATES DCCCLXXXVIII. DCCCLXXXIX.

Stems with rather elongate straggling branches, which, as well as the main stem, are more or less puberulent, with the pubescence intermixed with gland-tipped hairs. Leaves regularly whorled, 4 in a whorl, very shortly stalked, oblong-ovate, oblong or strap-shaped, with strongly revolute margins, pubescent or sub-glabrous above, glaucous with white stellate scales beneath except on the midrib, ciliated with rather long or long gland-tipped hairs, usually without fascicles of leaves in the axils. Flowers slightly drooping, shortly stalked, in terminal slightly secund head-like umbels, which have sometimes a whorl of flowers beneath them. Pedicels a little longer than the calyx, with a leaflike bracteole about the middle, but no bract at the base, except in those of the whorl beneath the umbel when it is present. Calyx-segments herbaceous, lanceolate or oblong-lanceolate, ciliated with gland-tipped hairs. Corolla three or four times as long as the calyx, oval-urceolate, scarcely curved, with 4 very short broadly-ovate teeth at the apex. Anthers included, each with 2 awns or spurs at the base. Style exserted. Ovary glabrous or downy.

SUB-SPECIES I.—Erica eu-Tetralix.

PLATE DCCCLXXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MCLXIII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 147.
E. Tetralix, *Linn. Sm.* Eng. Bot. No. 1014. *Bab.* Man. Brit. Bot. ed. v. p. 215. *Hook. & Arn.* Brit. Fl. ed. viii. p. 270. *Benth.* in *D. C.* Prod. Vol. VII. p. 65.

Stem sub-paniculately branched, the flowering-branches not all attaining the same height. Leaves with the margins usually so much rolled back as to be oblong or oblong-strapshaped, the upper side and midrib beneath generally pubescent. Branches, pedicels, and calyx-segments and capsule more or less pubescent or woolly-pubescent.

On damp heaths. Common, and generally distributed, from Cornwall, the Isle of Wight, and Kent, to Orkney and Shetland.

England, Scotland, Ireland. Shrub. Late Summer and Autumn.

Stems wiry, decumbent at the base, 9 to 18 inches high, with the barren and flowering-branches erect. Leaves crowded on the

SPECIES VII.—CENTAUREA SOLSTITIALIS. *Linn.*

PLATE DCCXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XV. Tab. DCCXCV. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 266.

Annual. Stem winged throughout, much branched. Radical leaves lyrate-pinnatifid, those in the middle and upper part of the stem strapshaped, entire, decurrent. Anthodes without leaves in their immediate vicinity. Pericline ovate-ovoid, usually arachnoid; appendages of the phyllaries at the base of the pericline with the main spine rather short, those in the middle with the spine longer than the pericline; spines not channelled on the upper side at the base, with 2 or 3 short spines on each side near the base. Florets bright-yellow, those of the ray shorter than the fertile ones. Pappus longer than the achene.

In lucerne and sainfoin fields. Rare, and not native. It seems to be most persistent in the South-east of Kent.

[England.] Annual. Late Autumn.

Plant forming a scrubby bush 18 inches to 2 feet high, with the lower part of the stems very stiff, almost woody; branches when young soft, with very broad wings decurrent from the short strapshaped leaves. Pericline $\frac{3}{8}$ to $\frac{1}{2}$ inch across; the spines of the middle phyllaries $\frac{1}{2}$ to 1 inch across, pale-yellow; inner phyllaries with scarious appendages. Achenes white, with a long pappus of soft white hairs. Plant hoary, arachnoid-pubescent.

St. Barnaby's Thistle.

French, *Centaurée du Solstice.* German, *Sonnenwende Flockenblume.*

This plant obtains its trivial name from being supposed to flower about the 11th June, old style, St. Barnabas-day. Before the alteration in style, the summer solstice fell on the 12th June, the day after St. Barnabas, and the old nursery rhyme was more appropriate:—

"Barnaby—Barnaby bright,
The longest day and the shortest night."

SUB-ORDER II.—CORYMBIFERÆ.

Anthodes with the florets of the disk generally perfect and tubular, those of the margin female (or rarely neuter) and ligulate (*heterogamous* and *radiant*); more rarely with all the florets tubular, those of the disk perfect, and those of the margin female (*heterogamous* and *discoid*), or all the florets tubular and perfect (*homogamous* and *discoid*). Style not thickened below the point where it divides into two branches. Pericline usually hemispherical or saucer-shaped. Phyllaries not spinous-pointed in any of the British species. Juice not milky. Plant often aromatic.

TRIBE I.—ANTHEMIDEÆ.

Leaves alternate. Anthodes generally heterogamous and radiant. Florets of the disk tubular, perfect; those of the ray generally female, more rarely neuter, ligulate or more rarely tubular. Anthers without basal appendages. Branches of the style in the fertile florets linear, convex externally, flat internally, hairy or tufted at the apex. Achenes various; pappus none or membranous and crown-like.

GENUS IX.—**CHRYSANTHEMUM.** *Linn.*

Anthodes heterogamous and radiant, rarely discoid, many-flowered. Clinanth hemispherical, more rarely nearly flat or conical, without paleæ. Pericline hemispherical or saucer-shaped, of numerous phyllaries which are generally imbricated, herbaceous with scarious margins. Florets of the disk tubular, perfect; those of the ray generally ligulate and female. Achenes cylindrical or prismatic or trigonous, ribbed, crowned by a large epigynous disk, with or without a membranous crown representing the pappus.

Herbs with alternate toothed or finely-divided leaves; anthodes generally rather large, with the florets of the disk yellow, those of the ray white, yellow, or rose-colour.

The name of this genus of plants comes from the words χρυσος (*chrusos*), golden, and ανθος (*anthos*), flower, descriptive of its large yellow blossoms.

SUB-GENUS I.—EU-CHRYSANTHEMUM.

Clinanth flattish or slightly convex in fruit. Florets of the ray yellow, ligulate, 4- or 5-toothed at the apex. Achenes of two forms, those of the female flowers of the ray trigonous or triquetrous, compressed, sometimes with the lateral angles winged, those of the disk turbinate-cylindrical, equally ribbed, with or without a crown.

SPECIES I.—**CHRYSANTHEMUM SEGETUM.** *Linn.*

PLATE DCCXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. CMLXXXVI. Fig. I.
Billot, Fl. Gall. et Germ. Exsicc. No. 395.
Zanthophthalmum segetum, *C. H. Schultz,* über die Tanacet. p. 17.

Leaves glabrous and glaucous, oblong or oblong-wedgeshaped, inciso-serrate or pinnatifid, the lower ones attenuated at the base into a winged petiole, the upper amplexicaul. Anthodes solitary, pericline flattish. Phyllaries broadly ovate, with very broad light-brown scarious margins and tips. Florets of the ray yellow. Achenes of the ray-florets sub-trigonous with narrow lateral wings, those of the disk-florets sub-cylindrical, all without a crown.

A weed in cultivated fields. Generally distributed, but becoming scarce in the more highly cultivated districts through improved farming.

England, Scotland, Ireland. Annual. Summer and Autumn.

Stem erect, 12 to 18 inches high, branched, the branches rather elongate and spreading-ascending. Leaves slightly fleshy, more or less deeply divided; the uppermost ones sometimes nearly entire. Peduncles hollow, enlarged upwards. Anthodes (including the ray) 1½ to 2½ inches across. Pericline slightly umbilicate, with the phyllaries glaucous-green, broadly edged with a dry semi-transparent light-brown border. Florets of the disk very broad, irregularly toothed at the apex. Achenes brownish-white, with a compressed triangular cross-section from the development of a corky wing on each side nearer the outer than the inner face; achenes of the disk without wings. Plant glabrous and glaucous.

Corn Marigold.

French, *Chrysanthème des Blés.* German, *Saat Wucherblume.*

This plant may still be found in our cornfields, although careful farming has greatly diminished its places of habitation, and shortly it may find the garden its only place of refuge. It is a very troublesome weed to the farmer, particularly in the turnip fields of Norfolk, on a sandy soil. In Denmark there is a law to oblige farmers to root it up out of their fields; and Threlkeld states, in 1727, that in Britain "Mannour courts do amerce careless tennants who do not weed it out before it comes to seed;" a laudable practice worthy of being retained. It is generally called the Corn Marigold;

and although it is probable that the name of Marigold was originally given to the *Calendula*, the garden Marigold, we think the name is well applied to this plant with its beautiful golden blossoms. It has many other names in different parts of England. In some parts it is called "St. John's bloom," in Kent yellow-bottles, ruddes or ruddle in Norfolk, gowlans or goules in the North of England, and yellow gowans or gools in Scotland. In the latter country a custom prevailed at one time, called "gool ridings," when the landlords rode over the fields and exacted a penalty from farmers on whose ground the conspicuous yellow Marigold predominated. In Germany it is used for dyeing yellow.

SUB-GENUS II.—TANACETUM. "*C. H. Schultz*," *Reich. fil.*

Clinanth flattish or slightly convex in fruit. Florets of the ray commonly white, ligulate, or the ligule sometimes absent. Achenes all similar, cylindrical or cylindrical-turbinate or cylindrical-prismatic, equally ribbed.

SECTION I.—LEUCANTHEMUM. *Tournef.*

Anthodes solitary. Pericline saucer-shaped. Clinanth flattish or slightly convex in fruit.

SPECIES II.—CHRYSANTHEMUM LEUCANTHEMUM. *Linn.*

PLATE DCCXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. CMLXXXVIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 1236.
Tanacetum Leucanthemum, "*C. H. Schultz*, über die Tanacet. p. 35." *Reich. fil*, l. c., p. 49.
Leucanthemum vulgare, *Lam.* *D. C.* Prod. Vol. VI. p. 46. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 140. *C. H. Schultz*, über die Tanacet. p. 36.

Radical leaves spathulate, petiolate; lower stem-leaves spathulate or wedgeshaped, inciso-crenate or shallowly pinnatifid; upper leaves oblong or oblong-strapshaped, sessile, semi-amplexicaul, serrate, all green. Anthodes solitary at the extremity of the stem and elongated branches. Pericline flattish, of numerous herbaceous phyllaries with rather narrow dark reddish-brown scarious margins and tips, the outer ones lanceolate, the inner oblong-strapshaped. Florets of the ray elongated, white, rarely absent. Achenes cylindrical, with 5 to 10 very prominent nearly equal ribs, those of the ray (generally ?) with a short crown, those of the disk naked at the apex.

In pastures, meadows, roadsides, and waste places, &c. Very common, and universally distributed.

England, Scotland, Ireland. Perennial. Summer and Autumn.

Rootstock slender, woody, branched. Stems erect, 1 to 2 feet high, sparingly hairy with jointed hairs. Leaves very variable in the degree of incision, those of the barren tufts generally crenate or doubly crenate, those towards the base of the stem attenuated, crenate, inciso-serrate or sometimes pinnatifid; upper ones generally inciso-serrate and semi-amplexicaul at the base. Anthodes, including the ray, 1½ to 2 inches across; disk rather convex. Florets of the disk yellow with the tube dilated and winged at the base, those of the ray with the ligule broad, rounded, or very faintly toothed at the tip. Achenes dark-grey, with very prominent white ribs. Plant deep-green, sub-glabrous, with minute scattered jointed hairs on the leaves, especially on the veins. All the specimens I have examined have a crown at the apex of the achenes of the ray-florets, but most authors describe them as destitute of one.

Great White Ox-eye.

French, *Chrysanthème grande Marguerite.* German, *Grosse Käseblume.*

The trivial name of this species of Chrysanthemum is as significant as its generic name—it is, in reality, white flower, the two names together being expressive of the two colours united in it. The old Northern name for this daisy was Baldur's brow; and this, with many other species of Chrysanthemum became also dedicated to St. John. We find a writer in the *Quarterly Review* writing thus: "The attributes of the Baptist are sometimes shared in a remarkable manner by St. John the Evangelist; and the golden 'sunflowers,' as these Chrysanthemums were formerly called, are occasionally introduced in representations of the latter saint with singular beauty and fitness. Thus, in stained glass of the 12th century filling a window in the apse of St. Rémi at Rheims, the Virgin and St. John appear on either side of the cross, the heads of both encircled by aureoles having sunflowers in their outer circles. The flowers are turned towards the Saviour on the cross as toward their true sun." The sunflowers of the garden are different flowers altogether, and are an importation from Peru.

The Chrysanthemum of the garden, that glorious ornament of the later months of the year, is a native of Japan, but belongs to the same genus as our humble Ox-eye. The first specimen of this foreign kind was cultivated here at Kew, and was of a purple colour. From this variety all the sorts now so fashionable have been derived. The little "pompone" Chrysanthemum was brought from Chusan by Mr. Fortune, and for a long time was known as the "Chusan daisy."

The young leaves of our native Ox-eye may be eaten as a salad. Gerarde tells us that "Dioscorides saith, that the floures of Oxeie made up in a seare cloth doe asswage and waste away cold hard swellings; and it is reported that if they be drunke by and by after bathing, they make them in a short time well coloured that have beene troubled with the yellow jaundice."

SECTION II.—PYRETHRUM. *Linn.*

Anthodes corymbose. Pericline hemispherical. Clinanth hemispherical in fruit.

SPECIES III.—CHRYSANTHEMUM PARTHENIUM.

Pers.

PLATE DCCXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. CMXCII. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 2863.
Tanacetum Parthenium, *C. H. Schultz*, über die Tanacet. p. 55. *Reich. fil.* l. c., p. 52.
Leucanthemum Parthenium, *Gr. & Godr.* Fl. de Fr. Vol. II. p. 145.
Pyrethrum Parthenium, *Sm.* Eng. Bot. No. 1231. *Fries*, Sum. Veg. Scand. p. 1.
Matricaria Parthenium, *Linn.* *Bab.* Man. Brit. Bot. ed. v. p. 178. *Hook. & Arn.* Brit. Fl. ed. viii. p. 57.

Leaves pinnate, with 3 or 4 pair of pinnæ; leaflets ovate, deeply pinnatifid or bipinnatifid; all the leaves except the uppermost ones (which are bitripinnatifid) stalked, finely pubescent. Anthodes corymbose, radiant. Pericline hemispherical; phyllaries with a blunt keel on the back, the exterior ones lanceolate, with the margins narrowly-scarious and pale; the inner ones oblong-strapshaped, white, scarious and lacerated at the summit. Florets of the ray short, flat, white, but much longer than the pericline. Achenes cylindrical-prismatic, enlarged upwards, equally 5-ribbed.

In hedge-banks and waste places. Common, and generally distributed, though possibly originally introduced, becoming scarce in Scotland.

England, Scotland, Ireland. Perennial. Late Summer and Autumn.

Rootstock not creeping. Stem 1 to 2 feet high, copiously paniculately branched in the upper half, sparingly downy. Anthodes (including the ray) $\frac{1}{2}$ to $\frac{3}{4}$ inch across. Phyllaries more curved upwards than in the preceding species, and with a very strong central rib, and destitute of the brown margins of the two first species. Ray-florets shorter than the diameter of the disk. Achenes small, whitish, sub-pentagonal, all crowned with a membranous border at the summit. Plant green; leaves thin, finely downy, especially upon the petioles; phyllaries slightly downy on the exterior.

Common Feverfew.

French, *Chrysanthème Matricaire.* German, *Mutterkraut.*

This plant is so like the Chinese Chrysanthemum, that by some botanists it is scarcely distinguished from it; indeed a double variety with all white flowers is commonly grown in our gardens. It was formerly valued as a tonic, and given for agues and low fevers; hence its common name, which is a corruption of "febrifuge." Among the recommendations in Gerarde's Herbal, we find the Feverfew extolled when dried and made into powder; and "two drams of it taken with honey or sweet wine, it purgeth by siege melancholy and flegme; wherefore it is very good for them that are giddie in the head, or which have the turning called *Vertigo*, that is, a swimming and turning in the head. Also it is good for such as be melancholike, sad, pensive, and without speech."

SPECIES IV.—**CHRYSANTHEMUM TANACETUM.**

PLATE DCCXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. CMXCVI.

Billot, Fl. Gall. et Germ. Exsicc. No. 1897.

Tanacetum vulgare, *Linn.* *Sm.* Eng. Bot. No. 1229. *Bab.* Man. Brit. Bot. ed. v. p. 180. *Hook.* & *Arn.* Brit. Fl. ed. viii. p. 244. *Benth.* Handbook Brit. Fl. p. 299. *D. C.* Prod. Vol. VI. p. 128. *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 407. *Fries,* Sum. Veg. Scand. p. 2. *Gr.* & *Godr.* Fl. de Fr. Vol. II. p. 137. *C. H. Schultz,* l. c., p. 52.

Leaves pinnate, with very numerous pairs of pinnæ; leaflets oblong-strapshaped, deeply pinnatifid; lobes serrate or entire; lower leaves shortly stalked, the upper semi-amplexicaul, subglabrous. Anthodes corymbose, discoid. Pericline hemispherical, with the exterior phyllaries lanceolate, bluntly keeled on the back; inner ones oblong, obtuse at the apex, with scarious pale fawn-coloured margins. Marginal florets female, not longer than the tubular perfect ones of the disk, obliquely truncate at the apex, the ligule scarcely apparent, 3-toothed, yellow. Achenes cylindrical-prismatic, enlarged upwards, equally 5-ribbed.

In hedge-banks, roadsides, borders of fields, and dry pastures. Rather sparingly but generally distributed, though probably not native in many of its localities, especially those in the North of Scotland.

England, Scotland, Ireland. Perennial. Autumn.

Rootstock creeping, stoloniferous. Stem erect, tough, 1 to 3 feet high, generally dull-purple, simple below, corymbosely branched at the apex in large examples, and terminated by a compact nearly simple corymb of numerous anthodes. Leaves with the lobes of the pinnatifid leaflets acute, serrate on the outside, with dots containing essential oil. Peduncles slender, naked, slightly thickened below the heads. Anthodes $\frac{1}{4}$ to $\frac{1}{2}$ inch across, bright-yellow. Clinanth hemispherical. Female florets sometimes absent. Achenes greenish-white, glabrous, frequently sprinkled with resinous dots, crowned by a short membranous uneven border. Plant dark-green, nearly glabrous, or with distant scattered hairs, especially on the petioles and veins of the leaves.

Common Tansy.

French, *Tanaisie Commune.* German, *Rainfarn.*

The Tansy is a common plant in many parts of the country, being generally found here and there on the borders of fields and by roadsides, where the soil is chalky or sandy.

The herb is bitter, aromatic, and tonic, and its flavour is not unpleasant. It is occasionally used in the country as a domestic medicine in intermittent fevers, and also as a vermifuge, the leaves being generally made into an infusion which is taken as tea. The active properties of the plant reside in the essential oil, which gives it its strong and peculiar odour; but it likewise contains a bitter resinous matter, and an acid called *tanacetic acid.* The essential oil is obtained from the herb by distillation; it has been used as a vermifuge, but in one case with fatal results. Boerhaave held the plant in great esteem, and recommended it as a spice, saying, "this balsamic plant may supply the place of nutmegs and cinnamon, for I believe that Asia does not supply a plant of greater fragrance than the Tansy." It is very little cultivated at present, though its leaves are sometimes used in omelettes, and also for colouring other dishes. It was formerly eaten much in Lent, as the representative of the *bitter herbs* commanded to be eaten with the Paschal lamb; and Tansy puddings and Tansy cakes, made from the young leaves mixed with eggs, are still in favour with some people. Gerarde alludes to the use of it in cookery in his day; he says—"In the spring time are made with the leaves hereof newly sprung up, and with egs, cakes, or Tansies, which be pleasant in taste and good for the stomacke. For if any bad humours cleave thereunto, it doth perfectly concoct them and carry them off. The root preserved with hony or sugar is an especiall thing against the gout, if every day for a certaine space, a reasonable quantity thereof be eaten fasting." It was likewise considered a specific in dropsy. Dr. Threlkeld relates a case of a soldier at Montpellier, who was cured of an obstinate dropsy by the decoction of Tansy alone. The same writer accounts for the habit of eating Tansy-cakes during Lent, on the ground that they "dissipate the flatulencies occasioned by the idle conceit of eating fish and pulse for forty days; but," says he, "I have seen several victims to superstition, who have broken an hale constitution by that presumptuous fasting, so that neither Tansy nor steel could repair it."

SUB-GENUS III.—TRIPLEUROSPERMUM. *C. H. Schultz.*

Clinanth hemispherical in fruit. Florets of the ray white, ligulate. Achenes all similar, trigonous or sub-tetragonous, with 3 corky ribs on the inner face, transversely rugose between the ribs, with 2 large glandular foveæ or pits at the apex on the back face, crowned by a membranous border all round.

SPECIES V.—**CHRYSANTHEMUM INODORUM.** *Linn.*

PLATES DCCXVII. DCCXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. CMLXXXV. Figs. 1, 2, 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 2864.
Tripleurospermum inodorum, *C. H. Schultz,* über die Tanacet. p. 32.
Matricaria inodora, *Linn.* *Bab.* Man. Brit. Bot. ed. v. p. 179. *Hook. & Arn.* Brit. l. p. 57.
Chamæmelum inodorum, *De Vis.* *Reich. fil,* l. c., p. 47.

Flowering-stem more or less corymbosely branched, nearly simple. Leaves bipinnate, the secondary leaflets cut into setaceous or cylindrical segments or entire; middle and upper leaves sessile; all glabrous. Anthodes solitary at the extremity of the stem and branches, radiant. Clinanth hemispherical or shortly-conical in fruit. Pericline flattish, with the phyllaries strap-shaped, flat, with brown or fuscous scarious margins. Florets of the ray ligulate, much longer than the phyllaries, white. Achenes sub-triquetrous, with 3 corky ribs on the inner face, transversely rugose between the ribs, with 2 foveæ on the external space immediately below the raised border.

Var. α, *genuinum.*

PLATE DCCXVII.

Pyrethrum inodorum, *Sm.* Eng. Bot. No. 760.
Matricaria inodora, *Linn.* *D. C.* Prod. Vol. VI. p. 53. *Fries,* Sum. Veg. Scand. p. 1. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 149.
Matricaria inodora, var. α, *Bab.* Man. Brit. Bot. ed. v. p. 179. *Hook. & Arn.* Brit. Fl. p. 257.
Tripleurospermum inodorum, *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 1026.

Annual or biennial. Rootstock and barren shoots none. Stem erect, corymbosely branched towards the apex. Segments of the leaves setaceous or cylindrical-setaceous. Anthodes numerous in a lax corymb. Clinanth of the fruit hemispherical, with the breadth greater than the height. Scarious margins of the phyllaries denticulate. Achenes oblong, triquetrous, with 2 marginal corky ribs and 1 on the inner face, leaving conspicuous places between them, and in addition sometimes 2 slender corky ribs on the outer face.

Var. β, *maritimum.* Pers.

PLATE DCCXVIII.

Pyrethrum inodorum, *Sm.* Eng. Bot. No. 979.
Tripleurospermum maritimum, *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 1226.

Matricaria maritima, *Linn.* *Fries*, Sum. Veg. Scand. p. 1. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 149.

Matricaria inodora, β maritima, *Bab.* Man. Brit. Bot. ed. v. p. 179. *Hook. & Arn.* Brit. Fl. ed. viii. p. 257.

Perennial. Rootstock woody, branched, with numerous barren shoots; segments of the leaves very short, cylindrical, fleshy. Flowering-stems ascending, short, simple or sparingly corymbosely branched towards the apex. Anthodes few. Clinanth of the fruit conical, with the breadth and height about equal. Scarious margins of the florets generally entire. Achenes broadly-oblong, trigonous, with the 2 marginal corky ribs meeting the one on the inner face, and leaving scarcely any appreciable space between them, and a very narrow one on the outer face.

Var. α in cultivated ground and waste places. Very common. Var. β on rocky and shingly seashores, chiefly in the North.

Stem erect, 6 inches to 2 feet high. Leaves with elongated slender segments in var. α, shorter and thicker in var. β. Anthodes on long naked peduncles, scarcely thickened below the anthodes. Anthodes, including the ray, ¾ to 1½ inch across in var. α, 1 to 2 inches in var. β; disk slightly convex in flower, yellow, becoming hemispherical in fruit. Florets of the ray strapshaped, indistinctly 3-toothed or entire at the apex. Ovary with 2 green spherical glands which become pits or foveæ on the achenes. Achenes twice as long as broad, dark-brown with the ribs whitish, the foveæ on the outer face nearly black: rarely there are 3 foveæ or 1 by coalescence. Plant bright- rather dark-green, glabrous.

Var. β seems too intimately connected by intermediate forms with var. α to be entitled to rank even as a sub-species, though the extreme forms, such as those from the Scottish coast, are very different in habit. The segments of the leaves are much shorter, more fleshy; the flowering-stems much less branched, and generally not so tall; the clinanth more conical; the peduncles more thickened upward; the achenes larger, half as long again as broad instead of twice as long as broad, with the corky ribs much thicker and the crown larger; the plant deeper green, and the leaves more shining.

Scentless Mayweed.

French, *Chrysanthème Inodore.* German, *Geruchlose Kamille.*

SUB-GENUS IV.—MATRICARIA. *Linn.*

Clinanth elongate-conical in fruit. Florets of the ray white, sometimes absent. Achenes all similar, oblong-cylindrical, with 5 rather slender ribs on the inner face, and the back curved and without ribs; epigynous disk oblique, sometimes with, sometimes without, a membranous border, which is most conspicuous in the achenes of the ray-florets.

SPECIES VI.—**CHRYSANTHEMUM CHAMOMILLA.** *E. Mey.*

PLATE DCCXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. CMXCVII.
Billot, Fl. Gall. et Germ. Exsicc. No. 1235.
Leucanthemum Chamæmelum, *Lam.* Fl. Fr. Vol. II. p. 139.
Matricaria Chamomilla, *Linn.* *Sm.* Eng. Bot. No. 1232. *Bab.* Man. Brit. Bot. ed. v. p. 179. *Hook. & Arn.* Brit. Fl. ed. viii. p. 258. *Benth.* Handbook Brit. Fl. p. 296. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 416. *Fries*, Sum. Veg. Scand. p. 1. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 149. *C. H. Schultz*, über die Tanacet. p. 24. *Reich.* l. c., p. 47.

Stem very copiously corymbosely branched. Leaves bipinnate, the secondary leaflets cut into setaceous segments or entire; middle and upper leaves sessile; all glabrous. Anthodes solitary at the extremity of the stem and very numerous branches, radiant or rarely discoid. Clinanth elongate-conical in fruit. Pericline flattish, with the phyllaries flat, short, oblong-strap-shaped, yellowish with scarious concolorous margins. Florets of the ray ligulate, much longer than the phyllaries, white, rarely absent. Achenes flattish on the inner side with 5 ribs, curved on the outer and without ribs or foveæ.

In cultivated and recently disturbed ground. Not uncommon in England, especially in the neighbourhood of London. Rare in Scotland, where I have never seen it, except on the ballast-hills on the Fifeshire coast.

England, [Scotland,] Ireland. Annual. Summer and Autumn.

This plant bears a striking resemblance to slender forms of C. inodorum, but it is of a yellower green, generally much more branched, and with the branches and consequently the anthodes more regularly corymbosely disposed; the anthodes smaller, ½ to ¾ inch across, with the ray shorter and reflexed immediately after flowering, which does not occur in C. inodorum until a later period; the disk is much more prominent while in flower, and afterwards becomes longer than broad; the leaves of the pericline are shorter, more scarious, and with the edges concolorous. The fruit is very different, not half the size of that of C. inodorum, grey, with the ribs slender, white. The whole plant is yellowish-green, glabrous, with the scent of chamomile.

Wild Chamomile.

French, *Matricaire Camomille.* German, *Aechte Kamille.*

This plant possesses many of the properties of the true Chamomile, and on the Continent it is frequently used as a substitute for it. Much of what is sold as the oil of Chamomile is distilled from its flowers, and in Finland it is given as a tonic in consumption. The flowers are less nauseous and bitter in taste than those of the true Chamomile.

GENUS X.—ANTHEMIS. *Linn.*

Anthodes heterogamous and radiant, rarely discoid, many-flowered. Clinanth hemispherical or conical, with paleæ. Pericline saucer-shaped or hemispherical, of numerous imbricated herbaceous phyllaries, sometimes scarious at the margin. Florets of the disk tubular, perfect, without auricles at the base enclosing the ovary, those of the ray ligulate, female or more rarely neuter. Achenes with ribs all round or on the inner face only, crowned by a large or small epigynous disk, often crowned with a raised generally oblique membranous border representing the pappus.

Herbs, with alternate finely-divided leaves. Anthodes generally rather large, with the florets of the disk yellow, those of the ray white, yellow, or rose-colour.

This genus derives its name from the Greek word *ανθεμον* (*anthemon*), a flower.

SUB-GENUS I.—EU-ANTHEMIS (ANTHEMIS, *Gay*).

Clinanth elongate-conical in fruit. Tube of the perfect florets compressed-winged. Achenes cylindrical-obconic, truncate at the apex, ribbed on both face and back; epigynous disk as broad as the top of the achene.

SPECIES I.—ANTHEMIS COTULA. *Linn.*

PLATE DCCXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. M.
Billot, Fl. Gall. et Germ. Exsicc. No. 1233.
Maruta Cotula, *D. C.* Prod. Vol. VI. p. 13.

Annual. Stem erect, simple, or several from the crown of the root, corymbosely branched at the apex. Leaves bipinnate (bipinnatipartite), with the secondary leaflets (segments) cut into linear-acute segments, glabrous, not punctate. Peduncles striate, not enlarged beneath the anthodes. Anthodes very numerous, corymbose. Pericline sub-glabrous, with the phyllaries nearly equal, narrowly scarious and pale at the summit, where they are not dilated. Clinanth conical at maturity, with linear-subulate acute firm paleæ. Ray-florets white, almost always without styles. Achenes smoothish on the inner face, with 3 faint ribs, remotely-tuberculate and 7-ribbed on the back and sides ; epigynous disk smooth, with a scarcely perceptible border.

In cultivated fields. Common in the South of England, less frequent in the North and in Scotland, and absent in the North of the latter country.

England, Scotland, Ireland. Annual. Late Summer and Autumn.

Stem 9 inches to 2 feet high, simple at the base in small specimens, but branched close to the ground in large ones, the top always corymbosely branched. Leaves closely resembling those of Chrysanthemum inodorum and C. Chamomilla, but with the segments broader, united together by narrow herbaceous strips, so that they are bipinnatipartite rather than bipinnate, the segments generally very acute. Anthodes about 1 inch across, terminal, on long furrowed hairy or sub-glabrous leafless peduncles ; disk yellow, convex in flower, elongating in fruit ; ray of numerous oblong-strapshaped florets, soon reflexed after flowering. Achenes yellowish-white, bluntly 5-sided, 10-ribbed. Plant nearly glabrous, fœtid.

The scales on the receptacle distinguish this from Chrysanthemum inodorum and C. Chamomilla.

Stinking Mayweed.

French, *Camomille Fétide.* German, *Stinkende Hunds-Kamille.*

This is one of the most troublesome weeds in gardens, and is easily recognized by its fœtid odour ; it is acrid, and will even blister the skin if held long in the hands. Toads are said to like this plant, but it is very displeasing to bees. It is a strong active bitter ; a decoction given in the dose of a teacupful will produce copious vomiting and perspiration, and powerfully promotes the action of an emetic.

SPECIES II.—ANTHEMIS ARVENSIS. *Linn.*

PLATES DCCXXI. DCCXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MIV.
Billot, Fl. Gall. et Germ. Exsicc. No. 2865.

Annual. Stems decumbent or ascending, much branched at the base, simple or slightly corymbosely branched at the apex. Leaves bipinnate (bipinnatipartite), with the secondary leaflets cut into strapshaped acute segments (or only serrate in var. β), hairy, not punctate. Peduncles striate, densely pubescent, slightly enlarged immediately beneath the anthodes. Anthodes few on each main branch. Pericline hairy ; phyllaries nearly equal, largely scarious and pale at the summit, where the interior ones are dilated and often lacerate. Clinanth hemispherical or conical at maturity, with lanceolate acute paleæ. Ray-florets white, with styles. Achenes nearly smooth and equally ribbed all round; epigynous disk rugose, with a conspicuous border.

Var. α, *genuina.*

PLATE DCCXXI.

A. arvensis, *Sm.* Eng. Bot. No. 602.

Peduncles very slightly dilated at the apex; secondary leaflets (segments) elongated, toothed or pinnatifid, very slightly fleshy. Clinanth hemispherical-conical at maturity.

Var. β, *Anglica.*

PLATE DCCXXII.

Anthemis Anglica, *Spr.* *Bab.* Man. Brit. Bot. ed. v. p. 178. *Hook.* & *Arn.* Brit. Fl. ed. viii. p. 258.
A. maritima, *Sm.* Eng. Bot. No. 2370 (non *Linn.*).

Secondary leaflets (segments) of the leaves reduced to large teeth, fleshy. "Clinanth flat" (Sm. & Bab.).

In cultivated fields, by roadsides, and in waste places. Rather rare, but generally distributed, except in the North of Scotland, though more abundant in that country than A. Cotula. Var. β found on the seacoast at Sunderland by Mr. Robson, and more recently by Mr. Backhouse.

England, Scotland, Ireland. Annual. Late Summer and Autumn.

Stem much branched from the base, where it divides into numerous decumbent or ascending rarely erect branches 6 to 18 inches long; primary branches simple in small specimens, slightly and irregularly branched in large ones. Leaves resembling those of A. Cotula, but the segments are broader and shorter, so that the leaves appear less finely divided; sometimes the segments are very short and fleshy. Anthodes 1 to 1½ inch across.

This may readily be confounded with A. Cotula, but the stems are very rarely erect and never so copiously corymbosely branched at the apex; the whole plant is thickly covered with hairs, and from their abundance is often white on the young leaves; the inner phyllaries are dilated at the apex, the ray-florets have styles, the pales are much broader and lanceolate-acuminate, not subulate. The achenes are not rugose on the sides and have the epigynous disk resembling a flattened ring divided into segments by transverse impressed lines.

With A. Anglica I am unacquainted except from the specimens contained in the Smithian Herbarium, where there are two wild specimens from Sunderland, and a cultivated one from Mr. Robson's garden — the latter scarcely differing from the normal state of A. arvensis. The wild specimens have the clinanth convex at maturity, the paleæ project between the florets and are rather more pointed than in the var. α; the pericline is more woolly; the leaves are much less divided, but not dotted, as erroneously described by Smith. I have specimens of var. α from Crookston, Edinburgh, which have the leaf-segments short and fleshy, approaching those of the so-called A. Anglica.

Corn Chamomile.

French, *Camomille des Champs.* German, *Acker Hunds-Kamille.*

SUB-GENUS II.—COTA. *J. Gay.*

Clinanth hemispherical in fruit. Tube of the perfect florets compressed, winged. Achenes compressed-tetragonal, narrow at the base, truncate at the apex, faintly ribbed on both face and back; epigynous disk as broad as the achene.

SPECIES III.—**ANTHEMIS TINCTORIA.** *Linn.*

PLATE DCCXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MX. Fig. 1.

Perennial. Stem erect or ascending, alternately branched. Leaves sub-glabrous above, somewhat woolly beneath, pinnate (pinnatipartite), with the rachis toothed between the leaflets; leaflets pinnatifid, with the lobes entire or serrate on the outer side and cuspidate. Peduncles striate, densely pubescent, scarcely thickened below the anthodes. Anthodes rather few. Pericline sparingly woolly; phyllaries unequal, narrowly scarious towards the summit, with a brown ciliated margin. Clinanth hemispherical at maturity, with lanceolate acuminate laciniated paleæ. Ray-florets yellow. Achenes subtetragonal, smooth, with 5 faint striæ on each face; epigynous disk smooth, crowned by an elevated membranous margin.

In fields and stony places. Said to have occurred in the counties of Essex, Northumberland, Fife, and Forfar; but it has not been found recently, and no doubt had been introduced.

[England, Scotland.] Perennial. Late Summer and Autumn.

Stem 1 to 2 feet high, branched so as to form a small bush. Leaves with the segments strapshaped, serrate or pinnatifid, all united by a green strip on each side of the rachis, which gives off processes between the segments. Peduncles long, leafless at the top. Anthodes 1 to 1½ inch across. Achenes whitish. Plant dull-green, more or less hairy; the leaflets sparingly woolly beneath.

Ox-eye Chamomile.

French, *Camomille des Teinturiers.* German, *Farber Hunds-Kamille.*

The flowers of this plant afford a remarkably clear and good yellow dye, and can scarcely be distinguished from those of the corn marigold.

SUB-GENUS III.—ORMENIS. *J. Gay.*

Clinanth elongate-conical in fruit. Tube of the perfect florets cylindrical, enlarged at the base, which is persistent and envelops the fruit equally or on one side only. Achenes compressed-cylindrical, rounded at the apex, with 3 slender ribs on the inner face, smooth or nearly so on the back; epigynous disk much smaller than the greatest diameter of the fruit.

SPECIES IV.—ANTHEMIS NOBILIS. *Linn.*

PLATE DCCXXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MI. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 261.
Chamomilla nobilis, *Godr.* Fl. de Lorr. Vol. II. p. 19.
Ormenis nobilis, *J. Gay,* in Fl. Par. ed. i. p. 398. *Coss & Germ.* Fl. Par. ed. ii. p. 491.

Perennial. Stems decumbent or ascending, alternately branched, rarely simple. Leaves bi- or tripinnate (bi- or tripinnatipartite), the leaflets (segments) short, linear-subulate, approximate, sparingly hairy. Peduncles striate, densely pubescent. Anthodes few. Pericline sparingly woolly; phyllaries always adpressed, with broadly scarious white lacerate margins. Clinanth hemispherical at maturity, clothed with short lanceolate-strapshaped obtuse scarious paleæ. Ray-florets white, rarely absent. Achenes cylindrical, slightly enlarged upwards, rounded at the apex, which is embraced by the base of the tube of the corolla equally on both sides, with 3 striæ on the inner face, smooth on the back and sides; epigynous disk small, without a distinct crown.

On commons and pastures, particularly on gravelly soil. Rather common in the South of England, becoming rarer in the North; scarce and probably not native in Scotland, though found as far North as Orkney.

England, [Scotland,] Ireland. Perennial. Late Summer and Autumn.

Rootstock shortly creeping, much-branched. Stem rooting at the base; branches generally ascending only at the apex, rarely erect. Leaves more divided than in any of the preceding species of Anthemis, with the segments much shorter, finer, more numerous and closer together. Peduncles elongate. Anthodes $\frac{3}{4}$ to 1 inch across. Achenes very small, pale olive-brown, nearly smooth, except the 3 faint striæ on the inner face, the upper part remaining invested with the persistent base of the corolla; epigynous disk very small, with scarcely any prominent border. Plant greyish-green, more or less hairy or pilose.

Common Chamomile.

French, *Camomille Romaine.* German, *Romische Kamille.*

The use of this herb in medical practice is of great antiquity. Gerarde tells us that "the Egyptians have used it for a remedie against all cold agues, and they did therefore consecrate it, as Galen sayeth, to their deities." The flowers possess certain tonic and febrifugal qualities, and at one time had a great reputation in many disorders. They contain a bitter extractive matter and volatile oil, which also exist in the seeds. In ancient times the powder was much used in agues, and in modern times even Cullen speaks favourably of its effects. A simple infusion under the name of Chamomile tea, is, or was, a very common domestic remedy for indigestion and stomach complaints. Chamomile is cultivated largely in the neighbourhood of Mitcham, in Surrey, and in other places in the vicinity of London. It was formerly planted in garden walks, that it might be odoriferous to the tread; and it was to this practice that Falstaff alludes when he reminds the prince, that "though the Chamomile, the more it is trodden on, the faster it grows, yet youth, the more it is wasted, the faster it wears." Beside the use of Chamomile-flowers in infusion as a drink, their power of retaining heat has recommended them as a fomentation or cataplasm; and a popular remedy for face-ache and other pains is a fomentation of poppy-heads and Chamomile flowers.

GENUS XI.—**DIOTIS.** *Desf.*

Anthodes homogamous and discoid, many-flowered. Clinanth hemispherical or shortly conical, with paleæ. Pericline campanulate-hemispherical, of numerous herbaceous imbricated woolly phyllaries. Florets all tubular and perfect, the tube produced at the base into 2 spurs resembling auricles, which almost entirely envelop the ovary and adhere to it. Achenes compressed, rounded at the apex, ribbed, permanently invested with the corolla-tube; epigynous disk without a crown or pappus.

A white woolly herb with alternate oblong-lanceolate semi-amplexicaul, entire, or crenulated leaves, and corymbose anthodes of yellow flowers.

The derivation of the name of this genus of plants appears to be from δὶς (*dis*), two, and ωτὶς (*otis*), the ear,—two-eared, in allusion to the fruit invested with the tube of the corolla.

SPECIES I.—**DIOTIS MARITIMA.** *Coss.*

PLATE DCCXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. CMXCVIII. Fig. 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 1499.
D. candidissima, *Desfont.* *D. C.* Prod. Vol. VI. p. 34. *Gr.* & *Godr.* Fl. de Fr. Vol. II. p. 159.
Santolina maritima, *Linn.* "MS." *Sm.* Eng. Bot. No. 141.
Athanasia maritima, *Linn.* Sp. Plant. p. 1182.

The only known species.

On sandy seashores a little to the north of Landguard Fort, Suffolk; near Carnsore Point, county Wexford; from whence I am favoured with specimens by Mr. John Waddy. It formerly occurred in Cornwall, Devon, Dorsetshire, Isle of Sheppey, near Lowestoft, and in Anglesea, but is now extinct in all the localities on the Southern coast. Abundant on the shores of St. Ouen's Bay, Jersey.

England, Ireland. Perennial. Autumn.

Rootstock very long, woody, branched in a somewhat tufted manner at the apex. Stems felted-cottony, ascending, 6 inches to 1 foot long, rather thick, nearly simple except at the apex. Leaves oblong or oblanceolate-oblong, crenate, densely felted-cottony and white on both sides. Anthodes $\frac{1}{4}$ to $\frac{3}{8}$ inch across, in a dense terminal corymb; peduncles short, those of the terminal flowers very short. Phyllaries few, ovate, the inner ones broader, so densely felted on the exterior that they are undistinguishable, unless the one be raised from the other. Paleæ oval, acuminate. Achenes curved, smooth, with 5 thick ribs, the greater part embraced by the base of the corolla-tube, which descends on each side in an elongated auricle. Plant white or hoary.

Seaside Cotton-weed.

French, *Santoline.* German, *Cypressen Kraut.*

GENUS XII.—ACHILLEA. *Linn.*

Anthodes heterogamous and radiant, several or many-flowered, rarely discoid. Clinanth convex or elongate-conical, clothed with paleæ. Pericline hemispherical or campanulate-ovoid, of numerous imbricated herbaceous phyllaries with scarious margins. Florets of the disk tubular, perfect, the tube not produced into auricles at the base ; those of the ray few, shortly ligulate and female. Achenes compressed, smooth on the faces ; epigynous disk without a crown or pappus.

Herbs with alternate, sessile, serrated or pinnatifid or finely divided leaves. Anthodes rather small or small, with the florets of the disk yellow or white, those of the ray with the ligule suborbicular, white, yellow, or pink.

This genus of plants derives its name from Achilles, the hero of Grecian story.

SECTION I.—MILLEFOLIUM. *Tournef.*

Pericline ovoid. Florets of the ray shorter than the pericline. Clinanth elongate-conical at maturity.

SPECIES I.—ACHILLEA TOMENTOSA. *Linn.*

PLATE DCCXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXXII. Figs. 2, 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 1010.

Rootstock short, scarcely creeping, with abbreviated leafy stolons. Leaves narrowly strapshaped, pinnatipartite, with the lobes approximate, pinnatifid, with 2 or 3 short linear lobes in the lower leaves, the rachis entire between the lobes, simple in the upper. Anthodes in a dense terminal repeatedly compound corymb. Pericline ovoid, woolly. Florets all yellow, ray half as long as the pericline.

In dry hilly pastures, not native. It has been found on Spittle Hill, north-west of Balvie, Dumbartonshire ; near Paisley, Renfrew ; Auchlunkert, Banffshire ; and near Newcastle, county Down. I have a specimen from the Rev. W. W. Newbould, labelled "North of Yorkshire. G. Francis."

[England, Scotland, Ireland.] Perennial. Late Summer and Autumn.

Rootstock short, branched, producing short stolons terminating in tufts of leaves. Flowering-stem erect from a decumbent base, 3 inches to 1 foot high, sparingly leafy, generally corymbosely branched at the apex. Anthodes $\frac{1}{6}$ inch across, very numerous, in a compact compound corymb. Plant dull-green, with the leaves slightly and the stem densely woolly.

Woolly Yellow Yarrow.

French, *Achillée Cotonneuse.* German, *Garbe.*

SPECIES II.—ACHILLEA MILLEFOLIUM. *Linn.*

PLATE DCCXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXXVI.
Billot, Fl. Gall. et Germ. Exsicc. No. 1501.

Rootstock creeping, with rather long subterranean stolons. Radical leaves elliptical-strapshaped; stem-leaves strapshaped; all tripinnatipartite or bipinnatipartite, with the segments cut, the ultimate lobes linear-subulate, very acute; the rachis entire (rarely with a single undivided tooth between each of the segments), and so narrow between the primary segments that the leaves ought almost to be termed pinnate or bipinnate. Anthodes in a dense terminal compound corymb. Pericline ovoid, subglabrous, with the phyllaries woolly towards the margin. Ray-florets white or pink, half as long as the pericline.

In pastures, waste ground, borders of fields, &c. Very common, and generally distributed.

England, Scotland, Ireland. Perennial. Late Summer and Autumn.

Rootstock rather short, creeping, slender. Stems erect, 3 to 18 inches high, leafy, the leaves often with 2 or 3 small leaves in their axils. Radical leaves stalked, much longer than the stem-leaves; the uppermost stem-leaves less divided and with shorter segments. Anthodes $\frac{1}{4}$ inch across. Disk whitish or pink; ray-florets white, pink, or deep-rose. Phyllaries strongly keeled, with a brown or more rarely fuscous scarious margin; the ligule suborbicular, bluntly toothed at the apex. Plant dull-green; the stem and rachis of the leaves more or less woolly; the leaves hairy or, in shady situations, subglabrous.

Common Yarrow.

French, *Achillée Millefeuille.* German, *Schafgarbe.*

The flowers of this species of Yarrow are known to every country child, and may be found in almost every meadow in the summer time. It was formerly much esteemed as a vulnerary, and its old names of "soldier's wound-wort" and "knight's milfoil," bear witness to this. The Highlanders still make an ointment from it, which they apply to wounds, and Professor Bromel states that milfoil-tea is held in much repute in the Orkney islands for dispelling melancholy!

Gerarde tells us that it is the very same plant wherewith Achilles cured the wounds of his soldiers. One of its common names among country people is "nose-bleed;" for the leaf being rolled up and applied to the nostrils causes a bleeding at the nose more or less copious. It is also called "old man's pepper," on account of the pungency of its foliage.

SPECIES III.—ACHILLEA TANACETIFOLIA. *All.?*

PLATE DCCXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXXVII. Fig. 1.
A. dentifera, *D. C.* Prod. Vol. VI. p. 25. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 163.

Rootstock elongate, creeping, with very long subterranean stolons. Radical leaves elliptical; stem-leaves elliptical-oblong; all pinnatipartite or bipinnatipartite, with the segments pinnatifid or serrated, the ultimate lobes short, triangular, acute; rachis of the radical-leaves rather broad, toothed between the primary segments, with the teeth serrate. Anthodes in a very large dense terminal compound corymb. Pericline ovoid, subglabrous, with the phyllaries woolly towards the margins. Ray-florets white (in British examples), about half as long as the pericline.

On moors. Ringing Low, five miles north of Sheffield; Cromford Moor, Derbyshire; probably escaped from cultivation.

[England.] Perennial. Late Summer and Autumn.

Stem erect, 2 to 4 feet high. Radical leaves and those of the tufts at the apex of the stolons very large, stalked, finely divided, the rachis with serrated teeth between the segments; stem-leaves narrower, with the segments serrated or pinnatifid-serrated, often with leaves in the axils. Anthodes $\frac{1}{5}$ inch across, white (generally purplish in Continental specimens), closely resembling those of A. Millefolium, but rather smaller, and having the phyllaries with narrower scarious margins, which are reddish-brown on the outer phyllaries, concolorous in the inner. Ray-florets more deeply toothed at the apex. Stem and rachis of the leaves thinly woolly; segments more or less hairy.

Tansy-leaved Yarrow.

French, *Achillée à Feuilles de Tanaisie.* German, *Edle Garbe.*

SUB-GENUS PTARMICA. *Tournef.*

Pericline hemispherical. Florets of the ray projecting beyond the disk for a distance nearly equal to the length of the pericline. Clinanth convex or hemispherical at maturity.

SPECIES IV.—**ACHILLEA DECOLORANS.** *Schrad.*

PLATE DCCXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXV. Fig. 1.
A. serrata, *Sm.* Eng. Bot. No. 2541.

Leaves oblong-strapshaped, serrate, the serratures acute, with a rather indistinct subdenticulate or entire cartilaginous margin, opaque, dotted, slightly hairy. Anthodes in a nearly simple corymb; pericline slightly woolly; phyllaries with pale margins; florets of the ray 5 to 6, ochreous, the projecting part rather shorter than the pericline.

Near Matlock, Derbyshire, but no doubt escaped from cultivation. It has also been reported from Somerset and York.

[England.] Perennial. Autumn.

Stem 12 to 18 inches high. Leaves dotted with leaves in their axils. Anthodes $\frac{1}{3}$ inch across, ray-florets more or less tinged with buff-yellow.

A. alpina of Koch and Reichenbach appears to differ only in the ray-florets being white and more numerous; but I have seen no specimens of that species, so do not venture to decide on its identity with A. decolorans.

Serrated Yarrow.

SPECIES V.—**ACHILLEA PTARMICA.** *Linn.*

PLATE DCCXXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXVI.
Billot, Fl. Gall. et Germ. Exsicc. No. 1232.
Ptarmica vulgaris, *D. C.* Prod. Vol. VI. p. 23.

Leaves strapshaped, acute, serrulate, with distinct denticulate or entire cartilaginous margins, shining, subglabrous. Anthodes in a nearly simple corymb. Pericline slightly woolly; phyllaries with reddish-brown scarious margins. Florets of the ray 8 to 12, white, the ligulate portion as long as the pericline.

On heaths, meadows, and in bushy places, and by the sides of roads and ditches. Rather common, and generally distributed.

England, Scotland, Ireland. Perennial. Autumn.

Rootstock creeping. Stem erect, 1 to 2 feet high, stiff, angular and pubescent towards the top, where it is generally branched. Leaves variable in breadth, sometimes very narrow, rather rigid, the serratures with a more or less evident usually denticulate cartilaginous margin. Anthodes $\frac{3}{4}$ inch across, rather few, in a somewhat lax flat-topped corymb. Outer phyllaries lanceolate, inner ones strapshaped obtuse, all with a prominent central nerve not reaching the apex. Ray-florets rather longer than broad, bluntly 3-toothed at the apex; disk-florets greenish-white. Plant dull-green, rather shining. Stem glabrous below, slightly downy above, and the upper leaves often with a few hairs.

Sneeze-wort Yarrow.

French, *Achillée Bouton d'Argent.* German, *Bertram Garbe.*

The young shoots of this plant are sometimes eaten as salad in spring; and the leaves are said to be made into tea in North Wales for the cure of headache; and a pleasant writer on wild flowers, who does not give us her name, says that she knows some old folks, who in their childhood drank no other tea, before the use of Chinese tea became so universal. The roots have a pungent, biting taste, and when chewed, cause a copious discharge of saliva, thereby relieving toothache; they are often sold in the shops for the pellitory of Spain. The double variety, sometimes called batchelor's buttons, is considered ornamental in gardens; but it should be admitted with caution the roots extending more than is desirable.

TRIBE II.—ARTEMISIEÆ.

Leaves alternate. Anthodes discoid, homogamous or heterogamous. Florets all tubular, those of the centre perfect or male, those of the circumference female or all perfect; female florets with the limb more or less oblique. Anthers with the lobes rounded or apiculate at the base. Style of the perfect flowers with linear branches furnished with a pencil of hairs. Achenes fusiform, sub-cylindrical or compressed, without ribs. Pappus none. Inflorescence paniculate, racemose or spicate.

GENUS XIII.—ARTEMISIA. *Linn.*

Anthodes homogamous or heterogamous, several-flowered, discoid. Clinanth flat or convex, naked or hairy, but without scales. Pericline hemispherical or ovoid or oblong-ovoid, of numerous imbricated herbaceous phyllaries with scarious margins.

Florets all tubular; those in the centre perfect or male, those of the circumference female, or all perfect. Achenes fusiform, compressed, without ribs; epigynous disk narrower than the top of the achene, without a crown or pappus.

Herbs with alternate generally broad and finely divided leaves. Anthodes small or rather small, generally very numerous, racemose or spicate, usually unilateral; the racemes generally combined into panicles. Florets yellow or purplish.

The name of this genus of plants has various derivations given for it. It is said by some authors to have been used by Artemisia, Queen of Caria, who gave it her name in honour of its virtues; others say it derived its name from Artemis, one of the names of Diana; while some suppose that the drooping and cypress-like character of some of the species procured it the name from Artemisia, the wife of Mausolus.

SECTION I.—ABSINTHIUM. *Tournef.*

Anthodes heterogamous; central florets perfect, those of the circumference female. Clinanth hairy.

SPECIES I.—**ARTEMISIA ABSINTHIUM.** *Linn.*

PLATE DCCXXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXXIX. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1895.

Stem herbaceous, erect, paniculately branched, with the branches ascending-erect. Leaves punctate, finely silky-pubescent on both sides, nearly white below; the lower ones stalked, with the petiole not auricled at the base; lamina twice or thrice pinnatipartite, with the ultimate segments flat, oblong-strapshaped, blunt, not apiculate. Anthodes very numerous, many-flowered, globose, shortly stalked, drooping, in rather lax racemes, arranged in a leafy panicle with erect branches. Pericline globose; phyllaries pubescent on the back, scarious at the apex, all nearly equal in length. Female florets dilated at the base above the fruit. Clinanth with long hairs.

In waste places and by roadsides, especially near the coast. Rather rare, but pretty generally distributed, except in the North of Scotland.

England, Scotland, Ireland. Perennial. Autumn.

Rootstock woody, producing barren shoots with tufts of leaves, and flowering-stems 1 to 3 feet high. Leaves of the barren shoots and of the lower part of the stems tri-pinnatipartite, those in the middle bi- and those in the upper part simply pinnatipartite, those towards the upper part of the panicle often entire. Anthodes $\frac{1}{6}$ inch across or more. Florets yellow. Achenes small, obovate-ovoid, glabrous. Whole plant silky pubescent, aromatic.

Common Wormwood.

French, *Armoise Absinthe.* German, *Wermuth.*

This herb was highly esteemed by the ancients as a tonic and diuretic, and was also considered to promote digestion and to restore the appetite. The Greek and Roman physicians likewise gave it as a vermifuge. Our own forefathers held it in great esteem, though some of the uses to which it was applied originated in superstition, or in the accounts given of it by the old classical writers, then held as the fountains of all wisdom. It was supposed to counteract witchcraft and necromancy, and was called by the monkish herbalists *Cingulum Sancti Johannis,* that saint being said to have used it as a girdle. If a garland of it were thrown into the fire on Midsummer eve, certain mystic verses being repeated at the same time, it effectually protected the operator from all supernatural agencies or magical incantations for the space of a year. It was often hung up in houses to protect them from evil spirits, or with a view of expelling or destroying the insects and vermin with which the timber of old houses was so much infested. Tusser alludes to its value in both these cases :—

> "While wormwood hath seed, get a handful or twaine,
> To save againste March to make flea to refraine.
> Where chamber is sweeped, and wormwood is strowne,
> No flea for his life dare abide to be knowne.
> Whatsoever is better, if physick be true,
> For places infected than wormwood or rue?
> It is as a comfort, for hart and the braine,
> And therefore to have it, it is not in vaine."

Gerarde is very discursive on the virtues of wormwood. After a long list of diseases for which he recommends its use, he says: "It helpeth them that are strangled with eating of mushromes or toad stools, if it be drunke with vinegre. And being taken with wine it is good against the poyson of *Ixia* (being a viscous matter proceeding from the thistle chamælion) and of hemlocke, and against the biting of the shrew mouse and of the sea dragon." The wormwood is really a powerful aromatic herb, and, when taken in moderate doses, acts as a mild tonic, in the same way as do many vegetable bitters. In Wales it is frequently put into beer instead of hops, and is said to prevent it turning sour; the Wermuth beer of Germany is made in a similar manner. The drink known by the name of *Purl* is made by infusing wormwood in beer. The liquor so highly esteemed in France under the name of Absinthe, is prepared by infusing this plant in spirit, and adding spices and condiments to it. It is a most seductive and dangerous compound, and often betrays those who would shrink from being considered habitual spirit-drinkers. The ashes of the plant afford a large quantity of carbonate of potash, which at the present day is sold in the shops as Salt of Wormwood.

SECTION II.—ABROTANUM. *Tournef.*

Anthodes heterogamous; central florets perfect, those of the circumference female. Clinanth glabrous.

SPECIES II.—**ARTEMISIA VULGARIS.** *Linn.*

PLATE DCCXXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXXXVIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 2692.

Stem herbaceous, erect, paniculately branched, with the branches spreading-ascending. Leaves not punctate, glabrous above, hoary or white pubescent beneath, the lower ones stalked, with the petioles auricled at the base; pinnatipartite or bi-pinnatipartite with the ultimate segments lanceolate or ovate, flat, acute, apiculate. Anthodes very numerous, few-flowered, erect, sessile, in rather short dense spikes arranged in a leafy panicle with short ascending branches. Pericline oblong-ovoid; exterior phyllaries woolly on the back, scarious at the apex, the outer ones not much shorter than the inner. Female florets cylindrical-filiform. Clinanth glabrous.

On hedge-banks, borders of fields, roadsides, and waste places. Very common, and generally distributed.

England, Scotland, Ireland. Perennial Autumn.

Rootstock short, thick, woody, producing short leafy barren shoots and flowering-stems 2 to 4 feet high, generally purplish-red. Leaves of the barren shoots with the petioles winged, dilated, and commonly with 2 or 3 foliaceous segments at the base; lamina pinnatifid or pinnatipartite, with the lobes coarsely serrate; leaves of the lower part of the flowering-stem pinnatipartite or bi-pinnatipartite, the segments varying much in breadth and depth of division; uppermost leaves trifid or entire. Anthodes $\frac{1}{8}$ inch across, florets purplish or dull-yellow. Achenes oblong-ovoid, glabrous. Plant green, with the leaves white beneath, slightly aromatic.

Mugwort.

French, *Armoise Commune.* German, *Gemeiner Beifuss.*

This plant possesses no beauty; but the history of its old associations is so interesting that we can never see it without recalling them. Its common English name was undoubtedly given to it from the practice of putting it into the mugs from which our forefathers drank, to flavour their contents. Before the introduction of hops, it was used greatly for the purpose of infusing in beer, and on the Continent is still occasionally employed as a culinary herb. Many valuable properties were attributed to it in bygone times; and even in late years some faith has been placed in its curative powers in epilepsy and convulsions. Dr. Withering tells us of a patient who was cured of hysteric fits of many years' duration by a dram of the leaves being administered four times a day. Gerarde writes: "Pliny saith that the traveller or wayfaring man that hath the herbe tied about him feeleth no wearisomnesse at all; and that he who hath it about him can be hurt by no poysonsome medicines nor by any wilde beast, neither yet by the sun itself; and also that it is drunke againste opium or the juyce of blacke poppy. Many other fantasticale devices invented by Poëts are to be seene in the works of the antient writers tending to witchcraft and sorcerie, and the great dishonour of God; wherefore I do of purpose omit them as things unworthy of my recording to your reviewing." We fear that a similar commentary might be appended to the chief part of the earlier editions of good old Gerarde's own herbal. Sheep are said to be very fond of the herbage of mugwort, and also of the roots. It may, perhaps, be the Artemisia of Pontus, which was celebrated among the ancients for fattening these animals. Pliny states that the sheep of Pontus became very fat, and were always without gall after eating this plant,—a circumstance highly improbable and not to be accepted.

SECTION III.—OLIGOSPORUS. *Cass.*

Anthodes heterogamous, central florets with the ovary abortive, those of the circumference female. Clinanth glabrous.

SPECIES III.—ARTEMISIA CAMPESTRIS. *Linn.*

PLATE DCCXXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXXXV.
Billot, Fl. Gall. et Germ. Exsicc. No. 1007 (*bis*).

Stem herbaceous, somewhat woody at the base, procumbent before flowering, at length ascending, paniculately branched, with the branches ascending. Leaves not punctate, at first pubescent, at length glabrous; the lower ones stalked, pinnate or bipinnate, with the ultimate segments linear, blunt, apiculate. Anthodes very numerous, few-flowered, erect, very shortly stalked, in elongate spikelike racemes arranged in a leafy panicle with elongate ascending branches. Pericline oblong-ovoid; phyllaries all glabrous, scarious at the tips, the outer ones much shorter. Female florets filiform, with an enlarged base. Clinanth glabrous.

On dry open sandy heaths, on the confines of Norfolk and Suffolk, as about Brandon, and near Thetford and Bury St. Edmunds, also near Belfast, but introduced.

England, [Ireland]. Perennial. Autumn.

Rootstock woody, producing tufts of short leafy barren shoots, with the leaves on long stalks. Flowering-stems prostrate, becoming more and more upright as they come into flower, 1 to 2 feet long, much more slender and rigid than in the preceding species. Anthodes $\frac{1}{5}$ inch across. Florets yellow, the involucre often purple. Achenes oblong, glabrous. Plant dark-green, at length glabrous, not aromatic.

Field Southernwood.

French, *Armoise des Champs.* German, *Feld Beifuss.*

This plant is destitute of the pleasant scent of the Southernwood of our gardens—the "old man" of our childhood—though it belongs to the same family. The real Southernwood is a native of Southern Europe and Asia. It was known to the Greeks, and was called *Abrotonon* by them. Its botanical name is Artemisia Abrotanum. It is a very old favourite in gardens, and is mentioned by Turner and Gerarde as being cultivated in almost every English garden in their time.

SECTION IV.—SERIPHIDIUM. *Bess.*

Anthodes homogamous; florets all perfect. Stigmas enlarged into a ciliated disk at the summit. Clinanth glabrous.

SPECIES IV.—**ARTEMISIA MARITIMA.** *Linn.*

PLATES DCCXXXIV. DCCXXXV.

Stem herbaceous, erect, paniculately branched. Leaves not punctate, more or less cottony on both sides, the lower ones stalked, bipinnate, with the ultimate segments linear, blunt, not apiculate. Anthodes numerous, 3- to 5-flowered, erect or drooping, sessile, in rather dense spikes arranged in a leafy panicle with the branches drooping or erect. Pericline oblong-ovoid; phyllaries unequal, more or less cottony on the back, scarious at the edges. Florets all perfect. Clinanth glabrous.

Var. α, *genuina.*

PLATE DCCXXXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVI. Tab. MXXXIX. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1008.
A. maritima, *Sm.* Eng. Bot. No. 1706. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 135. *Reich.* l. c., p. 75.
A. maritima et A. salina, *Willd.* *D. C.* Prod. Vol. VI. p. 103.

Branches of the panicle spreading, drooping at the apex. Anthodes erect or drooping.

with the true plant, although the former quotes the erroneous figure in Eng. Bot. Sup.

Broad-leaved Centaury.

French, *Erythrée à Grandes Feuilles.*

SPECIES II.—ERYTHRÆA LITTORALIS. *Fries.*

PLATE DCCCVIII. *bis.*

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXI. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 2883.
E. angustifolia, *Wallroth*, Sched. Crit. p. 504.
E. chloodes, *Gr. & Godr.* Fl. de Fr. Vol. II. p. 484.
E. linarifolia, *Griesb.* in *D. C.* Prod. Vol. IX. p. 59. *Reich.* l. c.
Chironia littoralis, *Sm.* Eng. Bot. ed. i. No. 2305.

Stem short and slender, or elongated and rather stout, straight. Radical leaves oblanceolate, obtuse; stem-leaves oblong-strapshaped, or oblong or strapshaped, obtuse; all 3-nerved, the lateral nerves often indistinct. Flowers in compact headlike fasciculate cymes, the central flower of each fork of the cyme sessile, the lateral ones shortly stalked and with 2 bracts close to the base of the calyx. Calyx-segments long, lanceolate-triangular-subulate. Corolla-tube scarcely longer than the segments of the calyx; limb of 5 elliptical segments, nearly as long as the tube. Capsule oblong-ovoid, not longer than the calyx. Plant glabrous, with the calyx and margins of the leaves generally (always?) puberulent.

On sandy sea-shores. Rather local. On the coast of Anglesea, Flint, Carnarvonshire, Lancashire, Northumberland, Isle of Arran; also reported from the shores of the Moray Firth, whence, however, I have not seen specimens.

England, Scotland, Ireland. Annual (?) or biennial. Summer.

Stem solitary or several from the crown of the root, rather slender and stiff, with 2 or 4 longitudinal lines, which are rather more prominent than in the other British species. Leaves ½ to 1 inch long, very narrow and usually distant, though variable in this respect. Flowers few, pink, large. Corolla-tube ⅜ inch long; limb concave, about ½ inch across. Calyx-segments very long and slender, projecting beyond the young buds. Plant green; leaves thick, somewhat fleshy; stem and sepals often minutely puberulent.

This species cannot be confounded with E. latifolia; the narrow parallel-sided obtuse stem-leaves and oblanceolate radical leaves are sufficient to distinguish it. The inflorescence is wholly different, having fewer flowers, and these in one fascicle, instead of forming three principal groups. The flowers themselves are more than twice the size, and only a few are open at one time. The calyx-segments are much more slender, and twice as long. The corolla-tube is much longer, and the segments of the limb broader, not tapering towards the apex, but widest in the middle.

Narrow-leaved Centaury.

SPECIES III.—ERYTHRÆA CENTAURIUM. *Pers.*

PLATE DCCCIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXI. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 55.
Chironia Centaurium, *Curtis*. *Sm.* Eng. Bot. ed. i. No. 417.

Stem stout and elongated, or short and slender, slightly flexuous. Radical leaves obovate or oval, obtuse; stem-leaves oblong-oval or oblong-elliptical, sub-obtuse; all 3- to 7-nerved. Flowers in rather compact corymbose or head-like fasciculate cymes, the central flower of each fork of the cyme sessile, the lateral ones shortly stalked and with 2 bracts close to the base of the calyx. Calyx-segments rather short, lanceolate-triangular. Corolla-tube considerably exceeding the calyx-segments, at length usually twice as long; limb of 5 oval-obtuse segments, shorter than the full-grown tube. Capsule cylindrical, considerably longer than the calyx. Plant wholly glabrous; the calyx and margins of the leaves not puberulent.

In fields, meadows, and damp places, especially on chalky soils, and rather partial to the seacoast. Common, and generally distributed.

England, Scotland, Ireland. Annual (?) or biennial.
Late Summer.

Stem 2 to 18 inches high, single or several from the crown of the root. Leaves very variable in breadth, but generally about twice as long as broad, the broader forms with more numerous nerves than the narrower ones. Flowers pink, rather numerous. Corolla-tube at length $\frac{1}{4}$ to $\frac{3}{8}$ inch long; limb slightly concave, about $\frac{3}{8}$ inch across.

A polymorphous species, in some of its forms closely resembling E. latifolia, from which it differs by its larger flowers, longer mature corolla-tube, and much larger and more oval segments of the corolla-limb. In E. latifolia the lateral branches of the corymb are considerably more spreading than in E. Centaurium; and in stunted specimens of the latter, which are most likely to be mistaken for E. latifolia, they are frequently absent.

The narrow-leaved forms of the present species show a close approximation to the shorter forms of E. littoralis. The flowers are about the same size, but the calyx-teeth are considerably shorter, so that when the tube of the corolla has attained its utmost length, it projects considerably beyond them; the flowers in the cymes are more numerous and more of them expanded at one time.

I have considerable doubt whether E. latifolia and E. littoralis should not be considered as sub-species of E. Centaurium; but I have never gathered the two former, and possibly in a living state they may present differences not apparent when dry.

Common Centaury.

French, *Erythrée Centaurée.* German, *Tausendgüldenkraut.*

This plant is as bitter as the gentian, and has been used in the same manner as a tonic infusion. Old writers praised it greatly; in an old Sloane MS. we find it written—"For hem that may not browke hir mete, take centorie, and sethe it in water and let the sike drinke it warme, three daies, and he schal be hoole." This was the cure for indigestion. Dr. Prior tells us that "the name of the plant came from the Centaur Chiron having cured himself with it from a wound he had accidentally received from an arrow poisoned with the blood of the hydra." The Germans, resolving the name into *centum aurei,* a hundred pounds, call the plant *Tausend Gülden.* "The Centaury is the basis of the famous Portland Powder, which prevents fits of the gout, when taken in large quantities and a long time together; but brings on induration of the liver, palsey, and apoplexy." So says Dr. Withering, and Culpepper tells us that "the herbe is so safe you cannot fail in the using of it, only give it inwardly for inward diseases, use it outwardly for outward diseases. 'Tis very wholesome but not very toothsome." On the Continent this remedy is still often used in intermittent fevers and dyspepsia, and it is sometimes given as a vermifuge. Its active principle is known to chemists as *Centaurin,* which in combination with hydrochloric acid is a remedy in low fevers. Its intense bitterness caused it to be named by the ancients *Fel Terræ,* or Gall of the Earth.

SPECIES IV.—**ERYTHRÆA PULCHELLA.** *Fries.*

PLATE DCCCCX. *bis.*

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXI. Fig. 5.
Billot, Fl. Gall. et Germ. Exsicc. No. 2884.
E. ramosissima, *Pers. Griesb.* in *D. C.* Prod. Vol. IX. p. 57. *Reich.* l. c.
Chironia pulchella, *Swartz. Sm.* Eng. Bot. No. 458.

Stem short and slender, or elongated and rather stout. Radical leaves obovate or oblanceolate, obtuse; stem-leaves oblong or oval, sub-obtuse or acute; all 3- to 5-nerved, very rarely 7-nerved. Flowers usually in a lax dichotomous cyme with elongated branches often occupying half the whole height of the plant, rarely in a rather compact corymbose fasciculate cyme, those in the forks pedicillate, the lateral ones stalked and with 2 bracts remote from the base of the calyx. Calyx-segments lanceolate-subulate. Corolla-tube at length exceeding the calyx-segments, often one-half or one-third longer; limb of 5 strapshaped-lanceolate sub-acute segments, one-third to one-fourth the length of the full-grown tube. Capsule cylindrical, slightly exceeding the calyx. Plant glabrous.

In fields, meadows, and damp sandy places, especially near the sea. Not uncommon in England; apparently rare in Scotland, where Dumfries is the only locality where it is certainly known to occur.

England, Scotland, Ireland. Annual or biennial.
Late Summer and Autumn.

Stem very variable in height, sometimes little more than 1 inch and at others above a foot high, in the larger specimens much branched, and then looking very distinct from all the other British species of Erythræa. The distant and solitary flowers in the axils of the forks and at the apices of the branches, prevent this form from being confounded with any of the others. There is, however, a condensed form, which has been found by Mr. P. C. Watson in Guernsey, in which the flowers are aggregated as in the preceding species, from the lateral branches being extremely short. In this case the principal difference from E. Centaurium is the long slender calyx-tube, which at length is about ½ inch long, and the small spreading star-like pink limb of the corolla scarcely ¼ inch across, so that the proportion of the tube to the limb is much greater in this than in any other species. The flowers, even in the condensed state, are more distinctly stalked, and the lateral ones with the bracts not close to the base of the calyx. Possibly, however, even this may prove to be but a sub-species of E. Centaurium. Mr. Bentham unites them all, though he is probably unacquainted with E. latifolia, as he only quotes the abbreviate form of E. Centaurium in Eng. Bot. Sup., and the condensed state of E. pulchella of Eng. Bot. ed. i. to represent it.

Slender Centaury.

French, *Erythrée Élégante.* German, *Heidliches Tausendgüldenkraut.*

GENUS II.—**CICENDIA.** *Adans.*

Calyx 4- (or rarely 5-) toothed or -partite. Segments not winged. Corolla funnelshaped-salvershaped, persistent and withering; tube short; limb 4- (rarely 5-) partite. Stamens 4 (rarely 5), inserted in the throat of the corolla; anthers exserted, not spirally twisted after the pollen is shed. Style distinct, simple, deciduous;

stigma undivided, capitate. Capsule ovoid or sub-globular, 1-celled or imperfectly 2-celled, septicidally dehiscing by 2 valves, with the placentæ parietal and sutural. Seeds numerous, very minute.

Small slender annuals, with the habit of Erythræa in miniature, but with a much shorter corolla-tube, and the parts of the flower normally in 4 instead of 5. Flowers yellow or pink, opening in sunshine.

We find the derivation of the name of this genus of plants given as from *cis* and *candeo,* to burn within ; thus we have *cicindela,* a glowworm.

SPECIES I.—CICENDIA PUSILLA. *Griesb.*

PLATE DCCCCXI.

C. pusilla et C. Candollii, *Griesb.* in *D. C.* Prod. Vol. IX. p. 61.

Stem slender, much branched from the base, and repeatedly forked ; branches spreading. Leaves linear, acute. Flowers in a very lax dichotomous cyme. Calyx 4-partite ; segments divided to the base, strapshaped - subulate, gradually attenuated towards the apex. Tube of the corolla rather shorter than the calyx-segments ; limb of 4 oval-lanceolate mucronate segments about half the length of the tube. Capsule cylindrical-fusiform, rather shorter than the calyx-segments.

In damp sandy commons. Very rare. Paradis, Guernsey.

Channel Islands. Annual. Summer, Autumn.

A minute inconspicuous annual, with numerous much-branched spreading stems 1 to 3 inches long, with narrow leaves, somewhat resembling those of a Sagina. Flowers solitary, on long slender peduncles, from the centre of the forks of the branches, and at their apices. Calyx of 4 (more rarely 5) long slender segments, not spreading at the apices in the Guernsey plant. Flowers pink. Corolla-tube $\frac{1}{6}$ inch long, not glabrous.

The Guernsey plant has the tips of the calyx-teeth erect as in Griesbach's C. Candollii, and the corolla rose-colour ; but according to Professors Boreau and Grenier, C. pusilla and C. Candollii cannot be separated even as good varieties, the one being merely a more developed state of the other.

Least Cicendia.

German, *Bitterblatt.*

SPECIES II.—CICENDIA FILIFORMIS. *Delarbre.*

PLATE DCCCCXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MXLV. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 3152.
Microcalla filiformis, *Link.* *Grisb.* in *D. C.* Prod. Vol. IX. p. 62. *Reich fil.* l. c.
Exacum filiforme, *Sm.* Eng. Bot. No. 233.

Stem slender, slightly branched, but not from the base, or simple; branches erect, simple or nearly so. Leaves very short, linear-subulate, acute. Flowers solitary, at the extremity of the stem and branches, so remote that they are better described as solitary flowers, although they are really disposed in a very lax cyme. Calyx 4-toothed; teeth divided scarcely one-third of the way down, deltoid, acute. Tube of the corolla rather longer than the calyx-segments; limb of 4 oval-ovate obtuse segments, about as long as the tube. Capsule oval-ovoid, longer than the calyx-segments.

In damp places in sandy bogs. Rare. Confined to the counties of Cornwall, Devon, Pembroke, Dorset, Hants, and Sussex. Glengarriff and Cork, Ireland.

England, Ireland. Annual. Summer, Autumn.

An upright plant, with thread-like stems 2 to 8 inches high; the leaves $\frac{1}{12}$ to $\frac{1}{3}$ inch long, very distant; the fruiting-peduncles 1 to 2 inches long. Corolla-tube $\frac{1}{3}$ inch long. Flowers yellow. Capsule brown, about $\frac{1}{5}$ inch long, very much more bulky than in the preceding species, from which C. filiformis differs remarkably in the calyx-segments not being free to the base, but merely forming small teeth at the top of a cupshaped tube. Plant glabrous.

Slender Cicendia.

GENUS III.—CHLORA. *Linn.*

Calyx 8- to 6-partite or cleft; segments not winged. Corolla widely funnelshaped-rotate, persistent and withering; tube very short, sub-globular; segments 8 to 6, divided nearly to the base. Stamens 8 to 6; anthers exserted, not spirally twisted after the pollen is shed. Style distinct, bifid, deciduous; stigmas generally bi-lobed. Capsule ovoid, 1-celled, septicidally dehiscing by 2 valves, with the placentæ parietal and sutural. Seeds numerous, minute.

Glabrous biennials, with the leaves often connate. Flowers in terminal dichotomous cymes, bright-yellow, opening in sunshine.

The name of this genus of plants comes from the Greek word χλωρος (*chloros*), greenish-yellow, probably owing to the colour of the blossoms.

SPECIES I.—**CHLORA PERFOLIATA.** *Linn.*

PLATE DCCCCXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MIX. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 2313.

Radical leaves obovate-elliptical, attenuated into an indistinct petiole; stem-leaves connate, deltoid-ovate, united by their whole base. Flowers numerous, in a corymbose cyme. Calyx 8-partite; segments strapshaped-subulate. Segments of the corolla oblong-obovate, sub-obtuse, often denticulate at the apex, nearly twice as long as the tube, one-fourth or one-third longer than the calyx-segments.

On chalky banks, not uncommon; more rarely on clay. Pretty generally distributed throughout England, as far North as the counties of York and Lancaster, but most abundant in chalk and limestone districts.

England, Ireland. Biennial. Late Summer.

Stem 9 inches to 2 feet high, simple up to the inflorescence, with a rosette of leaves at the base. Leaves rather distant, each pair so completely united as to seem like a single leaf with the stem passing through it, 1½ to 3 inches from point to point, entire, acute or acuminated. Flowers stalked, in a regular dichotomous corymbose cyme. Calyx-segments ½ to ⅝ inch long. Corolla about ¾ inch across when expanded, bright-yellow, with the segments slightly recurved at the tips, the tube ruptured by the capsule as it increases in size. Style 2-cleft at the apex; each stigma 2-partite. Capsule shorter than the calyx-segments. Plant glabrous and very glaucous.

Yellow Centaury.

French, *Chlore Perfoliée.* German, *Durchwachsener Bitterling.*

GENUS IV.—**GENTIANA.** *Tournef.*

Calyx 4- to 5-cleft or -partite, more rarely spathaceous and dimidiate, or 8- or 10-partite. Corolla funnelshaped-salvershaped or rotate, or campanulate, persistent and withering; tube long or short; limb 5- or 4-partite, frequently with appendices in the sinus, generally without glands; throat often closed with hairs. Stamens 4 or 5, inserted in the tube of the corolla; filaments not dilated at the base; anthers not twisting spirally after the pollen is shed. Style absent, or undistinguishable from the attenuated point of the ovary; stigma bifid, persistent. Capsule fusiform-cylindrical, 1-celled, septicidally dehiscing by 2 valves, with the placentas parietal and sutural. Seeds numerous, minute.

Annuals or perennials of various habits. Flowers commonly blue or purple, opening in sunshine.

This genus of plants was named after *Gentius*, a king of Illyria, who is said first to have discovered its medical virtues.

SPECIES I.—GENTIANA PNEUMONANTHE. *Linn.*

PLATE DCCCCXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLI. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 2313.

Root-fibres thickened, fasciculate. Rootstock very slightly branched, not creeping, with scale-like leaves. Flowering-stem elongated, simple or nearly so. Radical leaves none; stem-leaves strapshaped or linear-strapshaped, very slightly connate at the base; all obtuse, with reflexed margins, 1-nerved or indistinctly 3-nerved. Flowers solitary, or more rarely 2 together, terminal and axillary, stalked, with 2 linear bracts a little way below the base of the calyx, arranged in a raceme which is sometimes reduced to a single terminal flower. Calyx-limb obconical; segments 5, linear, about as long as the tube or a little shorter. Corolla-tube more than twice as long as the calyx; tube broadly obconical, without hairs in the throat; limb of 5 oval-acute segments, about one-fourth the length of the tube, not ciliated. Capsule longly stipitate.

On moist boggy heaths. Local. It occurs in Dorset, Hants, Sussex, Surrey, Suffolk, Norfolk, Carmarthen, Anglesea, Lincoln, Notts, Derby, Chester, Lancashire, York, Westmoreland, and Cumberland.

England. Perennial. Autumn.

Stems generally with a more or less decumbent base, then erect, 3 to 18 inches high. Leaves 1 to 2 inches long. Flowers $1\frac{1}{2}$ to 2 inches long, rather pale-blue externally, with 5 paler stripes, dark vivid-blue within, variegated with white in the throat; segments often denticulate. Plant glabrous, dark-green; leaves paler beneath, with the margins very finely cartilaginous-serrate.

Calathian Violet

French, *Gentiane à Feuilles Étroites*. German, *Gemeine Genziane.*

This pretty little plant is worthy of cultivation, and is quaintly mentioned by Gerarde, who says, "The gallant flowres hereof bee in their bravery about the end ot August," and he tells us that "the later physitions hold it to be effectual against pestilent diseases, and the bitings and stingings of venomous beasts."

SPECIES II.—GENTIANA VERNA. *Linn.*

PLATE DCCCCXV.

Reich. Ic Fl. Germ. et Helv. Vol. XVII. Tab. MLXVIII. Fig. 4.
Billot, Fl. Gall. et Germ. Exsicc. No. 1935.

Root-fibres slender. Rootstock much branched, shortly creeping, emitting numerous stolons with scale-like leaves. Flowering-stem simple, very short. Radical leaves in a rosette, oval or oblong-oval; leaves of the flowering-stem oblong-oval, very shortly connate at its base; all sub-acute, flat, 1-nerved. Flower solitary, terminal, with 2 oval leaf-like bracts near the base of the calyx. Calyx-tube prismatic, sharply 5-angled or 5-winged; segments 5, strap-shaped-lanceolate, one-third the length of the tube. Corolla-tube not quite twice as long as the calyx, cylindrical, without hairs in the throat; limb of 5 broadly-oval obtuse segments, about one-fourth the length of the tube, not ciliated, alternating with 5 minute teeth about one-sixth of their own length. Capsule sessile or sub-sessile.

On rocky and stony places in limestone districts. Rare. Along the course of the Tees, from Mickle Fell, down to Cronkley Scars, and between Gort and Galway and Burrin, co. Clare.

England, Ireland. Perennial. Spring.

Plant caespitose, the divisions of the rootstock terminating in rosette-like tufts of leaves $\frac{1}{4}$ to $\frac{3}{4}$ inch long. Flowering-stems very short, sometimes not more than $\frac{1}{2}$ inch when in flower, lengthening in fruit till from 1 to 3 inches long. Calyx-tube with 5 raised lines or wings, which are decurrent from the midribs of the segments. Tube of the corolla about 1 inch long; limb $\frac{3}{4}$ to 1 inch across, dark vivid-blue. Plant green, glabrous.

Spring Gentian.

French, *Gentiane Printanière*. German, *Frühlings Genziane*

SPECIES III.—GENTIANA NIVALIS. *Linn.*

PLATE DCCCCXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXIX. Fig. 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 820.

Rootstock none. Stem paniculately branched or simple. Radical leaves in a rosette, oval-obovate ; stem-leaves oval, usually very shortly connate at the base ; all sub-acute, 3-nerved or indistinctly 5-nerved, flat. Flowers solitary, terminal and axillary, stalked, with 2 elliptical bracts a little way below the base of the calyx, arranged in a raceme or racemose panicle which is sometimes reduced to a single terminal flower. Calyx-tube cylindrical, indistinctly 5-angled ; segments 5, triangular-strapshaped, rather shorter than the tube. Corolla-tube about one-third longer than the calyx, cylindrical, without hairs in the throat ; limb of 5 roundish-oval obtuse lobes, about one-fifth the length of the tube, not ciliated. Capsule sessile or sub-sessile.

On grassy places in mountainous districts. Rare. Between Craig Chailleach and Ben Lawers, Breadalbane, Perthshire ; and in Canlochan Glen, Forfarshire. I have gathered it only on the east slope of Catjaghiamen, a little to the east of Craig Chailleach.

Scotland. Annual. Late Summer.

Stems 1 to 6 inches high. Leaves $\frac{1}{8}$ to $\frac{1}{2}$ inch long. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch long ; limb star-like, $\frac{1}{4}$ inch broad, deep vivid-blue. Plant glabrous, often tinged with purple.

Small Alpine Gentian.

SPECIES IV.—GENTIANA AMARELLA. *Linn.*

PLATES DCCCCXVII. DCCCXVIII.

Rootstock none. Stem paniculately branched, rarely simple. Radical leaves oblanceolate or obovate-spathulate, obtuse ; stem-leaves lanceolate or triangular-lanceolate, not connate, acute ; all 3- to 7-nerved, flat. Flowers terminal and axillary, stalked, without bracts near the base of the calyx-tube, arranged in a slender panicle, which is reduced in small specimens to a raceme. Calyx-tube obconical ; segments 5, slightly unequal, triangular or lanceolate-triangular, acute, rather longer than the tube. Corolla-tube longer than the calyx, fringed with hairs at the throat ; limb of 5 oblong-lanceolate acute segments about one-third to one-fourth the length of the tube, not ciliated. Capsule sub-sessile.

SUB-SPECIES I.—**Gentiana eu-Amarella.**

PLATE DCCCCXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MXLVI. Figs. 4, 5, 6.
Billot, Fl. Gall. et Germ. Exsicc. No. 821.
G. Amarella, *Sm.* Eng. Bot. No. 236. *Fries*, Sum. Veg. Scand. p. 16. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 565. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 494.

Stem with the branches erect. Calyx-segments nearly equal, flat. Corolla-tube cylindrical, slightly exceeding the calyx when in flower, and less than twice as long in fruit.

In pastures, especially in chalky and limestone districts. Rather frequent, and pretty generally distributed throughout England; more rare in Scotland, where it is chiefly confined to the seacoast, reaching North to Caithness and Sutherland. Said also to occur in Shetland; but this requires confirmation.

England, Scotland, Ireland. Annual. Autumn.

Stem 3 to 15 inches high, with leaves $\frac{1}{2}$ to $1\frac{1}{4}$ inch long, broadest near the base, and then tapering gradually to the apex, generally rather distant; branches short, those towards the base of the stem longest, giving a somewhat pyramidal figure to the more branched specimens. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch long, dull lurid-purple; the stems and leaves frequently tinged with the same colour.

Autumnal Gentian.

French, *Gentiane Amarelle.* German, *Schwachbittere Genziane.*

The English Gentian possesses in a degree the properties of *Gentiana lutea*, which is used in medicine. The old English name of Felwort is applied to the whole family, and is said by Dr. Prior to refer to the bitterness of the species; "from *fel*, gall, and *wort* or *wurz*, a root;" but we are rather tempted to derive it from *fel*, a hill, so peculiarly is the Gentian a mountain plant. The Gentian is one of the most successful medicines in rustic pharmacy, and probably does less harm than most remedies so prescribed. A very favourite form in which it is administered, is as an ingredient in the so-called Stockton bitter, in which the Gentian and the root of the sweet flag play the principal part.

SUB-SPECIES II.—**Gentiana Germanica.** *Willd.*

PLATE DCCCCXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MLXLVII.
Billot, Fl. Gall. et Germ. Exsicc. No. 149.

Stem with the larger branches ascending. Calyx-segments unequal, one or two of them broader and more acuminate, often with slightly reflexed margins. Corolla-tube obconical, much longer than the calyx in flower, and more than twice as long in fruit.

In chalky places. Rare, and apparently very local. It is not known with certainty to occur anywhere except near Tring; the only specimens I have seen are from Buckland, in Bucks, and which were kindly sent me by the Rev. Harper Crewe. I have specimens from "Kingston Hill" without the name of the collector.

England, Ireland? Annual. Late Summer.

Gentiana Germanica approaches so nearly to G. eu-Amarella, that it is quite possible it may be merely a variety, and not a hereditarily distinct sub-species. It is, however, a much more showy plant, with stouter stems, more spreading branches, broader and closer leaves, and very much larger bluish-lilac flowers with a yellowish-white tube, about 1 inch long and $\frac{3}{4}$ inch across when expanded; the calyx-segments are of a brighter purple, and one or two of them considerably broader, in this showing some approach to G. campestris. Dr. Griesbach lays stress on the æstivation of the flowers, which is regularly contorted dextrorsely in G. Amarella, but which, he says, is quincuncially imbricated in G. Germanica. These characters, however, are evidently of no value. In the specimens sent by the Rev. Harper Crewe, both forms of æstivation occurred on the same plant, and neither form was restricted either to the terminal or lateral flowers. The capsule being sessile, or more or less stipitate, is another character which has been proposed; but neither form is certainly peculiar to the large- or the small-flowered plants.

German Gentian.

French, *Gentiane d'Allemagne.* German, *Feld Genziane.*

The Gentian of commerce, which is used in the British Pharmacopœia, is *G. lutea*, and has yellow flowers. The properties of the species are more fully developed in it than in our British species, though they might all be used as tonics had we no better resource.

SPECIES V.—GENTIANA CAMPESTRIS. *Linn.*

PLATE DCCCCXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. M.
Billot, Fl. Gall. et Germ. Exsicc. No. 148.

Rootstock none. Stem paniculately branched, rarely simple. Radical leaves oblanceolate- or obovate-spathulate; stem-leaves lanceolate, not connate, acute; all 3- to 7-nerved, flat. Flowers, terminal and axillary, stalked, without bracts near the base of the calyx-tube, arranged in a slender panicle or in small specimens in a raceme. Calyx-tube obconical; segments 4, very unequal, the inner ones strapshaped-triangular, the outer or lateral pair ovate-acuminate, longer than the tube. Corolla-tube longer than the calyx, fringed with hairs at the throat; limb of 4 oblong-lanceolate acute segments, about one-third to one-fourth the length of the tube, not ciliated. Capsule sub-sessile

In damp pastures. Rather common, and generally distributed. Plentiful in Scotland, extending to Orkney and Shetland.

England, Scotland, Ireland. Annual. Late Summer and Autumn.

Stems 2 inches to 1 foot high, with the leaves and branching similar to that of G. Amarella. Flowers about 1 inch long and $\frac{3}{4}$ inch across, pale lilac-purple, with the same copious fringe of hairs in the throat which adorns that of G. Amarella. The most striking difference is in the very unequal calyx-segments, two of them being very broad, while the other two are extremely narrow; the parts of the flower being in 4 instead of 5 is another obvious point of distinction, though occasionally a single flower of G. Amarella has the segments of the corolla limb only 4. The herbage of this plant is not usually tinged with the dull purple which is so common in that of G. Amarella. A variety with white flowers is not uncommon in the Highlands.

Field Gentian.

French, *Gentiane des Champs.* German, *Feld Genziane.*

This plant is sometimes used in Sweden and other northern countries as a substitute for hops.

TRIBE II.—MENYANTHIDEÆ.

Leaves, or at least all except the uppermost ones, alternate, trifoliate, or roundish and cordate. Æstivation valvate and induplicate. Testa woody; albumen usually not wholly filling the cavity of the testa.

GENUS V.—MENYANTHES. *Linn*

Calyx 5-partite. Corolla funnelshaped-bellshaped, fleshy, deciduous; tube short; limb 5-partite, with the segments bearded all over the inner surface, destitute of glands. Stamens 5, inserted in the tube of the corolla; filaments not dilated at the base; anthers not twisted spirally after the pollen is shed. Style distinct, persistent; stigma bilobed. Capsule globose, 1-celled, imperfectly loculicidally dehiscent; valves bearing the placentæ along their middle line. Seeds very numerous.

An aquatic herb, with creeping rhizomes and stalked trifoliate leaves, with obvate entire segments. Flowers in racemes, white, tinged with pink on the outside.

The name of this genus of plants comes from *μην* (*men*), a month, and *ανθος* (*anthos*), a flower, as continuing a month in bloom.

SPECIES I.—**MENYANTHES TRIFOLIATA.** *Linn*

PLATE DCCCCXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MXLIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 1038.

The only known species.

In spongy bogs, marshes, and shallow water. Generally distributed. Rather scarce in the South of England; common in the North and in Scotland.

England, Scotland, Ireland. Perennial. Early Summer.

Rootstock thick, creeping. Leaves alternate, with the petioles dilated and sheathing at the base; leaflets 3, oval-obovate, scarcely stalked, 1½ to 4 inches long, entire. Scapes axillary, 6 to 18 inches high, longer than the leaves, leafless. Flowers ¾ inch across, white, tinged with pink on the outside, disposed in an irregularly-whorled raceme, with 3 flowers in a whorl. Bracts ovate, sub-scarious, shorter than the pedicels. Calyx 5-partite; segments oblong-lanceolate, rather obtuse. Corolla more than twice as long as the calyx; segments 5, oblong-oblanceolate, sub-acute, recurved at the apex, glabrous on the outside, densely bearded with thick white hairs on the inside. Stamens slightly exserted, reddish-purple. Capsules green tinged with purple, about the size of peas, globular, abruptly acuminate. Seeds reddish-brown. Plant green, glabrous.

Common Buckbean.

French, *Menyanthe Trèfle d'Eau.* German, *Dreiblattriger Biber.*

The common name of this plant is believed by some botanists to have originally been *bogbean*, which, from its French synonym, *trèfle des marais*, is very plausible, says Dr. Prior. In German it is called *Bocksbohne*, and is considered a remedy against the scharbock or scurvy; whence it is called *Scharbock's Klee. Buckesbean*, and not bogbean, is the name of it in all the old herbals. The Buckbean is used in medicine as a tonic and febrifuge. The leaves are chiefly employed; they are collected in the summer and dried; one hundred pounds of the fresh foliage yielding about thirty-nine when dry. An extract is made from them, which possesses strong tonic properties due to a principle known as Menyanthin. The intense bitter of the leaves has led to their being substituted for hops in brewing, and large quantities of them are collected for the purpose, it is said, of adulterating beer. This adulteration is, however, perfectly harmless, and therefore cannot be so severely deprecated as many to which the same beverage is subjected. Two ounces of dried leaves are said to be equal to one pound of hops in flavouring beer. The creeping stems or rhizomes of the Buckbean contain a large quantity of farinaceous matter resembling starch. In Lapland and Finland these rhizomes are sometimes powdered, washed to get rid of the bitter principle, and then made into a kind of bread—not very palatable but somewhat nutritious. The Buckbean is one of the prettiest of our wild flowers and deserving of cultivation in the garden, where it grows and thrives well if planted in peat, and with water constantly around the roots.

The Buckbean has a reputation for preserving sheep from the rot; but it is exceedingly probable that these animals seldom touch it, on account of its bitterness, and this fact is observed by several botanists.

GENUS VI.—**LIMNANTHEMUM.** *Gmel.*

Calyx 5-partite. Corolla funnelshaped-rotate, membranous, deciduous; tube very short; limb 5-partite, with the segments bearded or ciliated in various ways, frequently with glands. Stamens 5, inserted in the tube of the corolla; filaments not dilated at the base; anthers not twisted spirally after the pollen is shed. Style commonly scarcely distinguishable from the prolonged point of the ovary; stigma bilobed. Capsule 1-celled, indehiscent, or bursting irregularly without separating into valves. Seeds 2 or numerous.

Aquatic herbs, with floating peltate or cordate leaves, and flowers in irregular simple umbels, generally yellow.

The name of this genus of plants is from *λιμνη* (*limne*), a pool, and *ανθος* (*anthos*), a flower, from the habitat of the species.

SPECIES I.—**LIMNANTHEMUM NYMPHÆOIDES.** *Link.*

PLATE DCCCCXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVII. Tab. MXLII.
Billot, Fl. Gall. et Germ. Exsicc. No. 1710.
Menyanthes nymphæoides, *Linn.* *Sm.* Eng. Bot. No. 217.
Villarsia nymphæoides, *Vent.* *Bab.* Man. Brit. Bot. p. 224. *Hook. & Arn.* Brit. Fl. ed. viii. p. 284.

Rootstock creeping, producing alternate leaves, and flowering-stems with opposite leaves. Leaves all stalked, floating, orbicular, very deeply cordate, with the basal lobes contiguous, repand-dentate. Flowers in umbels at the termination of the stem, but appearing axillary from the growth of a proliferous branch, which seems a continuation of the stem. Calyx-segments oblong-strapshaped.

Corolla funnelshaped-rotate, bearded at the throat; segments broadly obovate, shortly fimbriate round the margins. Seeds few, winged, ciliated.

In ponds and by the margins of slow-running rivers. Rare. In the counties of Sussex, Surrey, Oxford, Bucks, Berks, Gloucester, Middlesex, Essex, Norfolk, Cambridge, Huntingdon, Northampton; in all of which it appears to be wild. In the counties to the north of these, though it occurs as far north as Perth and Lanark, it has probably been planted.

England, [Scotland.] Perennial. Late Summer and Autumn.

Rootstock rather slender, creeping in the mud, and producing at distant intervals tufts of roots, alternate leaves, and flowering-stems, which reach the surface of the water, the latter generally spotted with red. Petioles varying in length according to the depth of the water; those of the leaves from the rootstock not dilated at the base, those on the flowering-stem much dilated and sheathing at the base. Leaves 1½ to 4 inches in diameter, rather longer than broad, shining green blotched with blackish-purple above, dim and usually purple below, roughened and thickly dotted with small glands. Umbels sessile, of numerous flowers, expanding one after the other. Flowers 1 to 1¼ inch across, bright yellow, the corolla very thin in texture, strongly bearded at the throat. Stamens included. Capsule flask-shape, acuminate, green often tinged with purple, longer than the calyx-segments. Plant glabrous.

Round-leaved Buckbean.

EXCLUDED SPECIES.

GENTIANA ACAULIS. *Linn.*

Eng. Bot. No. 1594.

Stated to have been found wild near Haverford West, Pembrokeshire, and on the sand-hills, near Liverpool; but doubtless this plant of the Alps had either escaped from cultivation in these stations, or G. pneumonanthe was mistaken for it.

SWERTIA PERENNIS. *Linn.*

Eng. Bot. No. 1441.

Said by Hudson to have been found in Wales by Richardson, but no one else has met with it, and there are no British specimens to vouch for its occurrence there.

ORDER XLVII.—POLEMONIACEÆ.

Herbs, rarely under-shrubs or shrubs, having watery juice, with alternate simple or compound leaves without stipules, the lower ones sometimes opposite. Flowers perfect, regular or slightly irregular, generally in panicles or corymbs, often in involucrate heads. Calyx persistent, free from the ovary, of 5 sepals more or less united at the base. Corolla deciduous, hypogynous, monopetalous, tubular-funnelshaped or salver-shaped ; limb 5-partite, twisted in bud. Stamens 5, inserted in the tube or throat of the corolla, and alternate with its lobes ; anthers 2-celled. Ovary 3-celled ; style 1 ; stigma 3-lobed ; ovules 1 or more in each cell of the ovary. Fruit a 3-celled capsule, loculicidally 3-valved. Seeds 1 or more in each cell, with a mucilaginous testa containing spiral cells, which uncoil when the seed is immersed in water ; embryo straight, with foliaceous cotyledons in the midst of fleshy albumen.

GENUS I.—POLEMONIUM. *Tournef.*

Calyx bellshaped, 5-cleft, herbaceous, persistent. Corolla subrotate, deciduous, regular ; tube very short ; limb 5-lobed, usually concave ; segments rhombic-obovate or -suborbicular. Stamens 5, declinate, inserted in the throat of the corolla ; filaments dilated and hairy at the base, their dilated bases nearly closing the mouth of the corolla. Style single ; stigma 3-cleft. Capsule ovoid, obtuse, 3-celled, 3-valved. Seeds numerous, not winged, or narrowly winged.

Herbs, with pinnate leaves, and showy blue, purple, or white flowers, arranged in terminal corymbs or short panicles.

It is said that the name of this genus of plants comes from the word πολεμος (*polemos*), war,—"two kings went to war about this plant."

SPECIES I.—POLEMONIUM CÆRULEUM. *Linn.*

PLATE DCCCCXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXXIV.
Billot, Fl. Gall. et Germ. Exsicc. No. 1273.

Stem leafy. Leaves pinnate; leaflets lanceolate or ovate-lanceolate, acuminate. Flowers numerous, corymbose. Calyx deeply 5-cleft; segments ovate-lanceolate, sub-acute. Corolla two or three times as long as the calyx. Anthers oval. Plant glabrous, or glandular-pubescent above.

In bushy places and by the sides of streams; probably wild in Stafford, Derbyshire, Yorkshire, and Westmoreland. It also occurs in many other counties both in England and Scotland, but very doubtfully wild,

England, [Scotland,] Ireland. Perennial. Summer.

Rootstock shortly creeping. Stem erect, 18 inches to 3 feet high, hollow, angular. Leaves with very numerous pairs of entire pinnæ ½ to 1 inch long, connected together by a narrow herbaceous strip, which runs down each side of the common petiole. Flowers slightly drooping, very numerous, in corymbose cymes terminating the stem and branches, which taken together form a short corymbose-topped panicle. Calyx-segments longer that the tube, which becomes swollen and nearly globular after flowering. Corolla ¾ to 1 inch across, deep blue, thin; segments broad, subacute, spreading. Anthers yellow. Filaments and style purple. Capsule erect, sub-globular. Seeds 6 to 10 in each of the three cells, angular, with a rugose testa produced into a short wing at the larger end. Plant green, glabrous, the upper part of the stem, upper leaves, branches, pedicels, and calyx generally clothed with very short gland-tipped hairs.

Jacob's Ladder.

This plant is also known as Greek Valerian. It is commonly admitted into our gardens, where both flowers and foliage become variegated.

EXCLUDED SPECIES.

GILIA TRICOLOR. *Benth.*

In corn-fields, near Merchiston Castle, Edinburgh.

COLLOMIA GRANDIFLORA. *Dougl.*

Has occurred in cultivated fields at Thirsk.

ORDER XLVIII.—CONVOLVULACEÆ.

Herbs often twining, more rarely under-shrubs or shrubs, with alternate leaves, or parasitical on other plants and leafless. Stipules none. Flowers perfect, regular, generally axillary, often showy. Calyx free from the ovary, persistent, of 5 equal or often very unequal sepals, rarely monosepalous and 5-toothed. Corolla hypogynous, monopetalous, funelshaped-bellshaped or subrotate-funnelshaped, more rarely bell-shaped or funnel-shaped, nearly entire with 4 or 5 lobes, plaited and twisted in bud. Stamens 4 or 5, inserted in the base of the corolla-tube; anthers 2-celled. Ovary 2- to 4-celled, rarely 1-celled, sometimes divided into 2 or 4 lobes, or apocarpous with 2 separate carpels; style simple, entire or 2-cleft, more rarely 2. Ovules few, often solitary, in each cell. Fruit a capsule splitting into valves, which break away from the dissepiments, or bursting transversely, or sometimes baccate and indehiscent. Seeds few, with a coriaceous or membranous testa; embryo large, curved, with corrugated folded foliaceous cotyledons, in scanty mucilaginous albumen.

TRIBE I.—CONVOLVULEÆ.

Leafy and non-parasitical plants. Carpels united into a syncarpous ovary. Embryo with cotyledons.

GENUS I.—CONVOLVULUS. *Linn.*

Calyx 5-partite or of 5 sepals, often irregular, and sometimes with 2 large bracteoles at the base. Corolla deciduous, funnelshaped-bellshaped or rotate-funnelshaped, with 5 plaits, and 5 angles or broad short teeth, without scales in the tube. Stamens inserted in the tube of the corolla, generally included. Style single, filiform; stigmas 2. Capsule sub-globose, 1- or 2-celled, indehiscent, or splitting into 2 valves united above, each cell containing 1 or 2 large seeds.

Herbs or under-shrubs, often twining, with axillary showy blue, purple, pink, white, or pale-yellow flowers, in shape often resembling the bell of a trumpet.

The derivation of the name of this genus of plants seems to be from *volvo*, I wind about, in allusion to the habits of the species.

SECTION I.—EU-CONVOLVULUS. (CONVOLVULUS, *R. Br.*)

Bracteoles small, distant from the base of the calyx. Capsule 2-celled.

SPECIES I.—CONVOLVULUS ARVENSIS. *Linn.*

PLATE DCCCCXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXXXVII. Fig. 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 1533.

Rootstock creeping. Stem twining or trailing, twisted upon itself. Leaves thin, stalked, ovate- or oblong- or strapshaped-triangular, sagittate-hastate or hastate at the base, obtuse, apiculate, entire or repand. Peduncles axillary, solitary, with 2 small strapshaped bracteoles beyond the middle, 1-flowered or with several flowers in a cyme, in which case each pedicel except the primary one has 2 small bracteoles beyond the middle. Sepals without bracteoles at the base, free nearly to the base, broadly oval, obtuse or truncate, very unequal. Corolla five or six times as long as the calyx.

In fields and cultivated ground, hedge-banks, road-sides, and waste places. Very common in England; local in Scotland, extending North to Aberdeen, Moray, Stirling, and Renfrew: said to have been found in Orkney, but I have never seen it there, nor heard of its recent occurrence.

England, Scotland, Ireland. Perennial. Summer.

Rootstock descending deeply into the ground. Stems numerous, somewhat tufted, slightly branched, varying in length, sometimes 2 or 3 feet high when climbing, but they are more usually merely trailing. Leaves 1 to 2½ inches long, varying very much in breadth, and in the direction of the basal lobes. Peduncles longer than the leaves, usually 1- or 2- (more rarely 3- to 6-) flowered. Corolla 1 to 1¼ inch across, pink or nearly white, with triangular reddish stripes on the back, often with a reddish ring within near the base, which is yellowish. Bracteoles lanceolate-strapshaped, minute. Fruiting-pedicels recurved. Capsule globular, acuminate, about the size of a large pea, glabrous. Seeds large, usually 4, subtrigonous, deep reddish-brown, roughened with minute points. Plant glabrous, or often with the peduncles and sometimes the leaves pubescent.

Small Bindweed.

French, *Liseron des Champs.* German, *Acker Winde.*

This pretty little creeping plant is well known to all lovers of wild flowers. It has a pleasant sweet scent, and entwines itself round the stem of every tree or shrub near which it grows. This quality does not recommend it to the agriculturist, as it is apt to choke those plants selected for its embraces. Its roots creep along very quickly and firmly in the ground, and it is regarded as a most troublesome weed by the farmer; its beauty in no way saving it from the ruthless hoe.

SECTION II.—CALYSTEGIA. *R. Br.*

Bracteoles very large, embracing the base of the calyx and nearly concealing it. Capsule imperfectly 2-celled, the dissepiment not reaching the apex.

SPECIES II.—**CONVOLVULUS SEPIUM.** *Linn*

PLATE DCCCCXXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXL.
Billot, Fl. Gall. et Germ. Exsicc. No. 2886.
Calystegia Sepium, *R. Br.* *Choisy* in *D. C.* Prod. Vol. IX. p. 433. *Hook. & Arn.* Brit. Fl. p. 286.

Rootstock extensively creeping. Stem twining, twisted upon itself. Leaves thin, stalked, triangular-ovate, cordate-sagittate or cordate-hastate at the base, acute, entire. Peduncles axillary, 1-flowered. Bracteoles 2, close to the base of the calyx, very large, triangular-ovate, mucronate, as long as or longer than the calyx, sub-cordate at the base. Sepals nearly equal, lanceolate, ovate-acute, free nearly to the base. Corolla 5 or 6 times as long as the calyx.

In fields, cultivated ground, hedge-banks, and waste places. Very common in England, local in Scotland; occurring as far North as Fife and the neighbourhood of Glasgow. Probably introduced in the counties of Forfar, Moray, and perhaps also in that of Argyle.

England, Scotland, Ireland. Perennial. Summer and Autumn.

Rootstock about the thickness of a quill, white, fleshy, brittle, creeping horizontally, and throwing out stems at intervals. Stem varying much in length, often 5 feet high or more, and almost always climbing, simple or slightly branched. Leaves 2 to 5 inches long, with the lobes at the base truncate, but more approximate than those of C. arvensis. Peduncles longer than the leaf-stalks, but generally not exceeding the leaves, and with a pair of large green bracteoles tinged with pink at the apex. Flowers 2 inches across, pure-white, rarely rose-colour, longer in proportion to their breadth than in C. arvensis. Capsule sub-globular, acuminated, about $\frac{1}{2}$ inch in diameter, with the dissepiment not reaching the apex, glabrous. Seeds large, subtrigonous, brownish-black, smooth. Plant glabrous.

Large Bindweed.

French, *Liseron des Haies.* German, *Zaun Winde.*

This beautiful species of Convolvulus is well known and admired by every one, as it hangs its graceful festoons over our hedgerows, opening its white blossoms to the bright sunshine, and gathering their folds together as a rain-cloud foretells the approach of a shower, which would shatter their delicate texture. Many botanists no longer call this plant by the old familiar name of our childhood. It is known as *Calystegia;* but we are glad to retain it here without artificial distinction as a Convolvulus. The lovely white blossoms last but for a single day; hence they are called by the French "Belle de jour." They are, however, so rapidly succeeded by a profusion of buds ready to take their places, that the decay is unnoticed, and our attention is diverted from the flower which has lived "its little day," and is now no more. Beauty is not the sole merit of this plant; the root has properties similar to those of *C. Scammonia,* from which the medicine known as scammony is obtained, and this species has been used as its substitute. Galen, as we are informed by Gerarde, recommends the leaves to be laid on hard swellings in order to disperse them. Gerarde will not admit, however, that any of the bindweeds are good as a medicine. He says, "they are not fit for medicine, and unprofitable weeds and hurtful to each thing that groweth next them, and were only administered by runnagat physickmongers, quacksalvers, old women leeches, abusers of physick, and deceivers of people."

SPECIES III.—CONVOLVULUS SOLDANELLA. *Linn.*

PLATE DCCCCXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXLI. Fig. 2.

Billot, Fl. Gall. et Germ. Exsicc. No. 2317.

Calystegia Soldanella, *R. Br.* *Choisy* in *D. C.* Prod. p. 433. *Hook. & Arn.* Brit. Fl. p. 286.

Rootstock creeping. Stem procumbent, not climbing or twisted upon itself. Leaves fleshy, stalked, roundish or reniform, deeply cordate at the base, obtuse, entire. Peduncles axillary, 1-flowered. Bracteoles 2, close to the base of the calyx, very large, oval, obtuse, rather shorter than the calyx. Sepals rather unequal, oblong, obtuse, or abruptly acuminated, free nearly at the base. Corolla four or five times as long as the calyx.

On sandy seashores. Rather local. In most of the English counties and those on the West of Scotland as far North as Argyleshire, but rare on the East coast, though it occurs in Forfar in considerable plenty near Carnoustie.

England, Scotland, Ireland. Perennial. Summer.

Rootstock slender, creeping to a great length amongst the loose sand. Stems usually only a few inches long, but sometimes 1 foot or more. Leaves $\frac{3}{4}$ to $1\frac{1}{4}$ inch across, very thick and fleshy, with the basal lobes rounded. Peduncles longer than the leaves. Bracteoles very broad, the outer one at least a little shorter than the calyx ; the two outermost sepals larger and broader than the others. Corolla shaped like that of C. Sepium, $1\frac{1}{2}$ inch across, pale purplish-pink, with pale-yellowish rays. Capsules nearly as large as a hazel-nut. Seeds about the size of peppercorns, globular - trigonous, black, dim, but smooth unless examined under a very powerful lens. Plant deep-green, shining, glabrous.

Sea Bindweed.

French, *Liseron Soldanelle.* German, *Meerstrands Winde.*

This is one of the prettiest of our seashore plants, and shares, in common with the rest of its family, a reputation in rustic pharmacy ; indeed, but few of our wild plants have not some virtue concealed within their substance, which has been employed with more or less success. It is only since the science of chemistry has proved that the active principles of these vegetable productions are the same in many plants, and can be extracted by chemical processes, that the practice of making infusions of all sorts of herbs and weeds, and attributing a special efficacy to each, has been gradually abandoned for the more convenient method of administering the valuable principles to be found in nature's laboratory in smaller quantities and a less troublesome form. The young shoots of the Sea Bindweed were formerly gathered by the people on the southern coast and pickled as a substitute for samphire : they are salt and bitter in flavour, even when thus prepared, and are probably not wholesome.

TRIBE II.—CUSCUTEÆ.

Leafless plants, parasitical on the stems of other plants. Carpels united into a compound syncarpous ovary. Embryo without cotyledons.

GENUS II.—**CUSCUTA.** *Tournef.*

Calyx 5-partite, coloured. Corolla persistent, bellshaped-salver-shaped ; tube with 5 small scales ; limb 4- or 5-lobed. Stamens 4 or 5, inserted in the middle of the corolla-tube between or above the scales. Styles 2, or 1- and more or less 2-cleft. Capsule sub-globose, 2-celled, circumscissily dehiscent. Seeds 2 in each cell of the capsule.

Leafless annuals, with thread-like stems twining round those of other plants, into which they insert adventitious roots. Flowers in globular heads or head-like corymbs, white or pink.

The origin of the name of this genus of plants is said by Dr. Mayne to be a corruption of the Greek word *κασσυθα* (*kassutha*), from the Arabic *chasuth* or *chessuth*.

SPECIES I.—CUSCUTA EPILINUM. *Weihe*

PLATE DCCCCXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXLII. Fig. 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 1936.
C. densiflora, *Soy.-Villm.* *Gr. & Godr.* Fl. de Fr. Vol. II. p. 503. *Reich. fil.* l. c.

Stems simple or very slightly branched, greenish-yellow. Flowers sessile, in very compact globular heads. Calyx-segments fleshy, semi-transparent, adpressed, deltoid-acuminate. Corolla scarcely exceeding the calyx ; tube inflated at the time of flowering ; limb erect, half the length of the tube ; lobes deltoid, slightly spreading, obtuse ; scales very minute, adpressed, fringed with teeth, distant, with rounded spaces between them. Stamens included. Styles 2, filiform, divergent, not half the length of the ovary ; stigmas sub-oblong. Seeds roughened.

Parasitical on flax. It has occurred in flax-fields in various places, but introduced with foreign seed and not persistent in any locality.

[England, Scotland, Ireland.] Annual. Late Summer and Autumn.

Stem twining round the flax-plants, with heads of about the size of peas, containing 6 to 12 flowers, which are of a greenish-white colour, sessile, and without bracts at the base of the individual flower ; but the head has generally a scarious bract at the base of its very short peduncle. Calyx whitish ; segments erect, keeled. Scales varying slightly in size, one below each stamen, bifid, fimbriated at the apex, their tips not reaching to the base of the stamen. Styles at first erect, afterwards spreading.

Flax Dodder.

French, *Cuscute étrangle Lin.* German, *Flachs Seide.*

Dr. Prior gives us the etymology of the word Dodder as the plural of dodd, a bunch—dot, a hampered thread, from its striking resemblance to bunches of threads entangled in the plants on which it grows. The species are all true parasites, fixing themselves on the branches of woody or other plants ; twisting round them, striking a number of minute suckers down on their bark, and thus attracting from the system of the plants, and from the air, the sustenance necessary to their own support. They do not, however, like the mistletoe, plunge their roots into the wood and incorporate themselves with the tissue. The species of which we now write attacks the crop of flax, and is very injurious to it. By French cultivators, the Dodders are called Teigne, Rache, Perruque, &c., and are much dreaded in fields of leguminous plants, upon which they multiply with singular rapidity. It is difficult to guard against them, on account of the rapidity of their vegetation and the facility with which they pass from one plant to another, the abundance of their seeds, and the double power they possess of germinating either in the earth or in the capsule. M. Vaucher says, that he cleared his fields from Dodder pretty well by perpetually breaking and dividing their stalks with a rake. The best method of extirpating this troublesome plant, however, appears to be to mow all portions of the field where the Dodder has been seen to develop itself, and to do it before it can have produced seed. Each species of Dodder attaches itself to its favourite crop, and no other will nourish it. Thus, if a portion of land should be infested with the seeds of any species of Dodder, if a crop of wheat or grass be sown on it, the seed will come up and perish, not finding any plants about it which would afford nourishment to it.

SPECIES II.—**CUSCUTA EUROPÆA.** *Murr.*

PLATE DCCCCXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXLII. Fig. 4.
Billot, Fl. Gall. et Germ. Exsicc. No. 2504.
C. Europæa, *Linn.* Sp. Pl. p. 180.
C. major, *D. C.* *Choisy* in *D. C.* Prod. Vol. IX. p. 452. *Reich. fil.* l. c.

Stems much branched, red or greenish-yellow. Flowers subsessile or shortly stalked, in rather compact sessile globular heads. Calyx funnel-shaped; segments fleshy only at the base, semi-transparent, erect, ovate, blunt, spreading at the apex. Corolla twice as long as the calyx; tube cylindrical at the time of flowering, afterwards inflated; limb spreading, as long as the tube; lobes broadly-ovate, obtuse, spreading; scales thin, rather small, adpressed to the tube, distant, with rounded spaces between them, or sometimes absent. Stamens included. Styles 2, filiform, divergent, nearly as long as the ovary; stigma oblong-linear. Seeds slightly roughened.

Parasitical on hop, nettles, vetches, thistles, &c. Rather rare. Sparingly distributed over England, from Somerset and Dorset to York, and said to have occurred near Aberdeen.

England, [Scotland]. Annual. Late Summer
and Autumn.

Stems much branched and matted. Flower-clusters quite sessile, at first about the size of peas, afterwards considerably larger. Flowers white tinged with red. This plant has the individual flowers smaller, but the clusters larger than in C. Epilinum, the corolla twice as long in proportion to the calyx, white tinged with pink, and the tube of the corolla is not inflated until the ovary begins to swell. The flower-heads are also much closer together and with the individual flowers shortly stalked.

A form (?) (var. nefrens, *Fries*) destitute of scales in the corolla, has occurred on vetches in cultivated fields at Thirsk and near Twycross: it is probably a distinct sub-species, but not native.

Great Dodder.

French, *Cuscute à Grandes Fleurs.* German, *Quendel Seide.*

This mischievous plant entangles and destroys with its living meshes the branches of hop, nettle, vetches, and other plants, around which it grows. The Dodders are all annuals, and commence life usually in the earth, where the seeds vegetate, and whence they climb on to objects of their attack, attaching themselves by minute tubercles to the surface of the stalks. As soon as they find they have secured a firm hold, they relinquish connection with the soil, and steal their sustenance wholly from their victim. Their stems are as fine as thread, and twine round the plants they attack in a tangled mass, so as often to conceal them. Cowley takes advantage of the nature of the Dodder to describe it as an illustration of female dependence. Describing the plant on which it grows, he says: On him—

> "She must depend alone,
> And nothing in herself can call her own.
> Fed with his juice, she on his stalk is born,
> And thinks his leaves her head full well adorn.
> Whate'er he be, she loves to take his name,
> And must, with him, be every way the same."

SPECIES III.—CUSCUTA EPITHYMUM. *Murr.*

PLATE DCCCCXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCCXLIII. Fig. 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 150.
C. Europæa β, Epithymum, *Linn.* Sp. Plant. p. 180.
C. Europæa, *Sm.* Eng. Bot. No. 55.
C. minor, *D. C.* *Choisy* in *D. C.* Prod. Vol. IX. p. 453.

Stems threadlike, branched, usually red. Flowers sub-sessile or shortly-stalked, in compact sessile globular heads. Calyx bell-shaped, red; segments slightly fleshy, semi-transparent, ovate-lanceolate, acute, slightly spreading at the tips. Corolla slightly exceeding the calyx; tube cylindrical at the time of flowering; limb spreading, as long as the tube; lobes triangular, acute, spreading; scales very large, as long as tube of corolla, incurved, nearly concealing the ovary. Stamens exserted. Styles 2, filiform, longer than the ovary, erect; stigmas linear. Seeds slightly roughened.

Parasitical upon ling, furze, thyme, and other small shrubby plants. Not uncommon in England; rare in Scotland, where it is said to grow at Mollance, Galloway.

England, Scotland(?). Annual. Late Summer and Autumn

Stems very slender, generally bright red or purple. Clusters of flowers approximate, sessile, generally tinged with rose-colour, particularly on the calyx, occasionally 4-cleft and with 4 stamens, as in the preceding species, but more generally 5-merous.

The large fimbriated scales which converge and nearly hide the ovary, distinguish this plant well from small forms of the preceding; to which may be added the acute calyx-segments and shorter corolla with acute lobes. The flowers are about half the size, and the heads not larger than peas even when in fruit.

Lesser Dodder.

French, *Cuscute à Petites Fleurs.* German, *Quendel Seide.*

This plant often looks very pretty, as it lies in patches on furze, heath, or other plant which it may attack. Its red threads are so delicate and attractive in appearance, that a casual observer would scarcely imagine how mischievous they are. Well is it called in country districts "strangle weed." At first it appears in little patches, but in a week will cover a space as large as a barn door. The whole tribe have strong acrid qualities, and have been used in medicine, but with no good results. The Dodder found growing on the thyme, "Thyme Dodder," as it was called, was carefully stowed away as a remedy against "cold greefes" and "trembling of the heart," and was believed to partake of some of the stimulating nature of thyme. Culpepper tells us, in summing up the virtues of the Dodder, that it cures by sympathy; and he adds,—"Sympathy and antipathy are the two hinges upon which the whole model of physick turns, and that physitian which minds them not, is like a door off from the hooks, more likely to do a man a mischief than to secure him."

SPECIES (?) IV.—CUSCUTA TRIFOLII. *Bab.*

PLATE DCCCCXXIX.

Billot, Fl. Gall. et Germ. Exsicc. No. 151.

Stems threadlike, branched, reddish-yellow. Flowers subsessile or shortly-stalked, in compact sessile globular heads. Calyx funnel-shaped, white tipped with red; segments slightly fleshy, semi-transparent, lanceolate, acuminate, erect. Corolla as long as the calyx; tube funnel-shaped at the time of flowering; limb spreading, as long as the tube; lobes triangular, acute, spreading; scales rather large, half as long as the tube of the corolla, incurved, but not completely concealing the ovary. Stamens exserted. Styles 2, filiform, longer than the ovary; stigmas linear.

Parasitical upon red clover. Not uncommon in England, but doubtless often passed over as C. Epithymum. Probably introduced with foreign seed.

[England, Scotland.] Annual. Late Summer.

This plant comes very near C. Epithymum, of which it is not improbably merely a sub-species. The heads of flowers are more approximate, larger, the individual flowers considerably larger, and the calyx not red, but white, or merely with the segments bordered with red; the stem forms closer coils, and the plant grows in large patches, killing all the cover within the area. According to Professor Babington, it differs from C. Epithymum, in having the scales narrow, only half the length of the tube of the corolla, distant, with the sinus between them rounded, and the connecting membrane forming cup-like spaces between itself and the tube of the corolla; while in C. Epithymum the scales are as long as the tube of the corolla, and approximate below, with the sinus between them narrow and acute. Professor Crepin, in the fourth Fascicule of his "Notes sur les Plantes rares et critiques de la Belgique," states that he finds at Rochefort a plant which apparently agrees with that of Professor Babington, except that the scales are separated by only a narrow interval with a subacute sinus. It is much to be wished that botanists who meet with this plant would examine large numbers of fresh specimens, in order to ascertain whether it is variable in this respect or not, as it is the principal character by which it can be separated from C. Epithymum: in dried specimens, the scales shrivel so much that no certain conclusions can be drawn from them.

Clover Dodder.

French, *Cuscute Trèfle.* German, *Klee Seide.*

This species of Dodder is recognized by Professor Babington as especially attacking fields of clover, and we recollect very well seeing whole districts covered with it, entirely destroying the original crops. In Sussex, one field especially presented at a distance the appearance of having circular heaps of some red substance all over it, which being near the seacoast, we mistook for seaweed, until, on closer inspection, we discovered the red threads of the Dodder entirely overpowering the clover and growing in circular patches as described.

EXCLUDED SPECIES.

CUSCUTA HASSIACA. *Pfeiff.*

This plant, which is known by many different names, as C. corymbosa (*Ruiz. et Pav.*), C. suaveolens (*Ser.*), C. racemosa (*Engelman*), Grammica aphylla (*Lour.*), and Engelmannia or Cuscutina suaveolens (*Pfeiff.*), was found by Mr. Varenne near Witham, Essex, in 1851; and also previously near Riven Hall, in the same county; possibly also in Hertfordshire. Mr. Varenne, in a letter dated December 28th, 1865, writes to me:—"I have not met with Cuscuta Hassiaca since the notice of its discovery appeared in the 'Phytologist.'" The plant cannot, therefore, be considered as permanently established in Britain.

ORDER XLIX.—SOLANACEÆ.

Herbs or undershrubs, more rarely shrubs, with alternate leaves, often with fascicles of smaller leaves in their axils; stipules none. Flowers perfect, regular or nearly so, generally solitary or in cymes, never in true racemes. Calyx free from the ovary, persistent (the apical portion sometimes deciduous), 5- rarely 4-toothed, cleft, or partite. Corolla hypogynous, monopetalous, rotate, salver-shaped, funnel-shaped, bell-shaped, or clavate, regular or nearly regular, with the limb 5- rarely 4-lobed; segments with valvate, plicate, or imbricated æstivation. Stamens inserted in the tube of the corolla, alternate with the lobes and equalling them in number (*i.e.* 5 or 4), equal or nearly equal in length. Ovary 2-celled, rarely 3- to 5-celled, with the placenta in the centre; style single; stigma generally entire; ovules numerous in each cell. Fruit a 2-, 3-, or 4-celled berry, or a capsule with 2, 4, rarely 3 or 5 or more cells. Seeds numerous; embryo minute, usually curved, in fleshy albumen.

GENUS I.—SOLANUM. *Linn.*

Calyx of 5- (rarely 10-) partite segments, persistent, but not accrescent after flowering. Corolla regular, rotate, or rarely campanulate; tube very short; the limb 5- (rarely 10-) partite; segments valvate in æstivation. Stamens 5 (very rarely more), inserted in the throat of the corolla, exserted; filaments very short; anthers connivent and coherent, each one opening by 2 pores at the apex. Fruit a berry, with 2 (or rarely more) cells. Seeds numerous, sub-reniform.

Plants of various habit, with the flowers frequently extra-axillary, commonly white or violet, rarely yellow.

The derivation of the name of this genus of plants is from *solor*, I case, because of its stupefying power.

SPECIES I.—**SOLANUM DULCAMARA.** *Linn.*

PLATE DCCCCXXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXXIII. Figs. 1, 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 160.

Rootstock extensively creeping. Stem shrubby, flexuous, without thorns. Leaves stalked, ovate, the upper ones often hastate, or with 1 or more pair of rather small pinnæ below the large terminal lobe, which is acuminate and entire. Cymes corymbose, mostly opposite the leaves. Flowers numerous, drooping. Corolla 5-partite; segments triangular-lanceolate, spreading-recurved. Berries drooping, oval-ovoid, pointed.

Var. α, *genuinum.*

Stem elongated, climbing. Leaves thin.

Var. β, *marinum.*

Stem prostrate, much branched. Leaves fleshy.

Var. α in hedges and thickets and banks of ditches. Common, and generally distributed in England, more rare in Scotland, but reaching North to the counties of Aberdeen and Argyle. Var. β on shingle by the seashore in the southern counties of England and the West of Ireland.

England, Scotland, Ireland. Perennial. Summer.

A soft-wooded shrub with weak stems, supporting themselves on surrounding plants, 3 to 6 feet high or more. Bark of the main stem grey, of the branches of the year green and smooth. Leaves stalked, 1½ to 3 inches long, the upper ones with a pair of segments much smaller than the middle one, sometimes united with it so as to be hastate, sometimes separate so as to be bi-pinnatifid, or almost pinnate, and occasionally there is a second pair of segments below the first; all the segments connected together by a narrow strip or wing running down each side of the petiole from the terminal lobe. Corymbs stalked, many-flowered, terminal but apparently lateral, from the non-production of an axillary branch, which resembles a continuation of the main stem. Pedicels slender, curved, without bracts, longer than the calyx. Calyx 5-lobed; lobes roundish-deltoid, obtuse. Corolla ½ inch across, purple, sometimes white; segments each with 2 green spots at the base. Anthers bright-yellow, with scarcely any filaments, nearly as long as the petals, cohering together in a tube round the style, which projects beyond the tube formed by the cohering anthers. Berry ½ inch long, red, pellucid, with a very thin skin, rather pointed. Plant green, glabrous, or with the branches of the year, petioles, leaves, and peduncles more or less shortly pubescent.

Var. β differs much in habit, having the stems short, much branched, prostrate, with the branches of the year fleshy; the leaves have shorter stalks, and are generally without the segments at the base, though these are occasionally present; the calyx-segments are rather more acute, but both forms vary in this respect; the young leaves and stems vary from glabrous to pubescent, as in var. α.

Woody Nightshade.

French, *Morelle Douce-amère.* German, *Bittersüss.*

The family of plants to which this species belongs has been long considered to be poisonous in its qualities, and until lately but little distinction has been made between the effects of different species. Dr. Garrod, the Professor of Materia Medica at King's College, London, considers all the Solanums as perfectly innocuous, and has performed a number of experiments to prove his theory. It is, however, very unsafe to allow the berries of any of these plants to be eaten, and we think—although it is well not to allow false notions to continue with regard to the active properties of plants—it is also wise to forbid children and young people from eating any wild fruits about which there may be doubts. The older physicians valued the Bitter-sweet, as this plant is called, and applied it to many purposes in medicine and surgery. Gerarde says, "The juice is good for those that have fallen from high places, and have been thereby bruised or dry beaten, for it is thought to dissolve bloud congealed or cluttered anywhere in the intrals, and to heale the hurt places." Boerhaave considered the young shoots superior to sarsaparilla as a restorative; and Linnæus speaks of it in the highest terms as a remedy for rheumatism, fever, and inflammatory diseases. It is a curious fact that our universally-eaten potato should belong to a family of plants about which there is so much suspicion. For some time Linnæus objected to its use on account of its connections; but, although we believe illness has resulted from taking the water in which the roots have been boiled, the potato itself is one of our most valuable articles of diet, and we can but recall with gratitude the transplantation of this useful root from Virginia in 1584, by Sir Walter Raleigh, on to his estate near Youghall, in Ireland, little thinking though he did, that it would one day become the chief subsistence of a large portion of his countrymen. In some counties this plant is called the Deadly Nightshade, and Mr. Bentham has thus named it in his "Handbook of the British Flora." This term, however, ought to be applied only to the *Atropa Belladonna.*

SPECIES II.—**SOLANUM NIGRUM.** *Linn.*

PLATES DCCCCXXXI. DCCCCXXXII.

Rootstock none. Stem herbaceous. Leaves rhomboid-ovate, repand-dentate or sinuate-dentate, acute. Cymes umbellate-corymbose, produced from the upper part of the internodes. Flowers 3 to 7, slightly drooping. Corolla deeply 5-cleft; segments triangular, very slightly reflexed at the apex. Berries drooping, globular, obtuse.

Var. α, *genuinum.*

PLATE DCCCCXXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXXI.
A nigrum, *Sm.* Eng. Bot. No. 566.

Leaves dentate or repand. Berries black, rarely pale-yellow.

(?) Var. β, *miniatum.*

PLATE DCCCCXXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXXII. Figs. 2, 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 3440.
S. miniatum, *Bernh.* *Willd.* Enum. Hort. Berol. Vol. I. p. 236.

Leaves sinuate-dentate. Berries scarlet, smaller than in var. α.

In cultivated ground and waste places, and by roadsides and on sandy seashores. Common, and generally distributed in the South of England, less abundant in the North. Rare in Scotland, and apparently confined to the seashore in Wigtonshire and Ayrshire. It has also occurred in Fife, but no doubt introduced. The form with yellow berries has been found by Mr. H. C. Watson at East Moulsey, Surrey. Var. β has occurred only in the Channel Islands, on the Quenvais and at Petit Port, &c., Jersey, and at Jerbourg, Guernsey.

England, Scotland, Ireland. Annual. Late Summer and Autumn.

Stem much branched, the branches ascending or decumbent, 6 inches to 3 feet long, angular, often more or less tuberculated on the angles, succulent. Leaves with the lamina 1 to 4 inches long, rather abruptly narrowed into the base, and continued downwards into the winged petiole, the outline varying from ovate to rhomboidal, but generally intermediate between these, margins entire, repand, or with a few large deltoid teeth. Cymes stalked. Pedicels drooping, all springing from nearly the same point. Calyx 5-cleft, the segments ovate. Corolla white, $\frac{1}{4}$ to $\frac{3}{8}$ inch across; segments ciliated, at length reflexed, but less revolute than in S. Dulcamara. Berries about the size of small peas, dull-black or rarely ochreous whenripe. Plant glabrous, or more or less pubescent.

Var. β is said to come up true from seed, and if this be invariably the case, it must then be considered a sub-species. It is generally smaller, with the branches more tuberculate on the angles, always more or less hairy, the fruit smaller and scarlet, the seeds, at least in the specimens I have seen, more deeply pitted.

Black Nightshade.

French, *Morelle Noire.* German, *Schwarzer Nachtschatten.*

This plant is also called the Garden Nightshade, and has had the reputation of being very poisonous. This fact is, however, disputed by recent inquirers; and we find Dr. Swain Taylor, in his work on poisons, denying that the effects of the plant on the system are in any way as dangerous as they are supposed to be. Duval gave to dogs four ounces of the aqueous extract, and in another experiment 180 ripe berries of the plant, without any ill effects resulting. On the other hand, Floyer states that thirty of the berries killed a dog in three hours. These differences may perhaps be reconciled by supposing that the active principle, *solania*, on which the poisonous properties of both species depend, varies very much at different seasons of the year. Orfila found that the extract of *Solanum nigrum* had a very feeble effect as a poison, and the fatal cases reported to be caused by it are perhaps referable to belladonna, for which it may have been mistaken. Nevertheless Dr. Taylor observes that "the berries of *Solanum nigrum* have, in at least one instance, produced very serious effects on children who have eaten them. They complained of headache, nausea, vertigo, colic, and tenesmus. One child died in the acute stage; two others apparently from secondary consequences, during treatment."

GENUS II.—**LYCIUM.** *Linn.*

Calyx bellshaped-cylindrical, regularly 5-toothed, or irregularly 2- to 5-toothed, persistent but not accrescent after flowering, at length enclosing the base of the fruit. Corolla regular, funnelshaped or salvershaped; tube elongated; limb 5-partite; segments imbricated in æstivation. Stamens 5, inserted in the middle or near the bottom of the tube of the corolla, included or exserted; filaments elongated; anthers not connivent, opening by longitudinal slits. Fruit a berry with 2 cells. Seeds several, reniform.

Shrubs often spiny, with alternate entire leaves, and rather small generally lateral flowers of various colour.

The name of this genus is that of the thorny apple of Thessaly, and is a Greek word—*λυκιον* (*lukion*). The name given by Dioscorides to the ancient plant is derived, no doubt, from Lycia, in Asia Minor, where it grew.

SPECIES I.—**LYCIUM BARBARUM.** *Linn.*

PLATE DCCCCXXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXXV. Fig. 1.

Stem slender, arching or supporting itself on surrounding objects, much branched; branches slender, pendulous; abortive branches reduced to spines. Leaves elliptical or lanceolate-elliptical, attenuated at the base into short petioles, subacute, entire. Flowers axillary, stalked. Peduncles solitary or 2 or 3 together, shorter than the leaves. Calyx 2-lipped, the lips entire or slightly 2-toothed. Corolla salvershaped-funnelshaped; tube cylindrical; limb as long as the tube, with 5 oblong obtuse spreading-recurved segments. Stamens exserted; filaments bearded at the base. Fruit oval-ovoid, pointed.

In hedges and waste places. Not native, but quite naturalized on the South and South-east coasts.

[England.] Shrub. Summer and Autumn.

Stem 3 to 6 feet high or more, if it finds support at a greater altitude; bark smooth, whitish-grey; branches very numerous, glabrous, slender, with lateral excrescences at the nodes: these excrescences are frequently elongated into spines or abortive branches, or sometimes into short leafy branches at right angles to the direction of the main branch, which has 1 or more raised longitudinal lines. Leaves varying in size, ½ to 3 inches long, spreading, green, rather paler below, with fascicles of small leaves in their axils. Flowers ½ inch across, purple with a pale-green eye with purple streaks when first expanded, but soon fading to livid fawn-colour. Stamens inserted in the upper part of the corolla-tube; anthers fawn-colour. Berry bright-red, ½ to ¾ inch long, the base embraced by the spathe-like calyx. Plant glabrous.

Tea-plant.

French, *Lyciet de Barbarie.* German, *Gemeiner Teufelszwirn.*

Loudon tells us that this plant is commonly called the Duke of Argyll's Tea-tree, from the circumstance of a Tea-plant, *Thea viridis,* having been sent to the Duke of Argyll at the same time as this plant, and the labels having been accidentally changed. It is also called Barbary Box-thorn.

GENUS III.—ATROPA. *Linn.*

Calyx 5-partite, persistent, slightly accrescent after flowering, and becoming rotate in fruit. Corolla regular, bellshaped or funnelshaped-bellshaped; limb of 5 (rarely 10) short segments, imbricated in æstivation. Stamens 5, inserted on the bottom of the corolla-tube, sub-exserted; filaments elongated; anthers not connivent, opening by longitudinal slits. Fruit a berry with 2 cells. Seeds numerous, sub-reniform.

Herbs or shrubs, with entire leaves and purple, greenish, or white flowers, generally extra-axillary and drooping.

The name of this genus of plants is said to be derived from *Ατροπος* (*Atropos*), one of the three Fates, whose special duty it was to cut the thread of life; because of its deadly effects.

SPECIES I.—**ATROPA BELLADONNA.** *Linn.*

PLATE DCCCCXXXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXIX.

Rootstock stoloniferous. Stem thick, herbaceous. Leaves broadly ovate-oval, attenuated into short petioles, shortly acuminated or acute at the apex, entire. Flowers drooping, solitary, stalked. Peduncles from the forks of the stem and the axils of the leaves above the forks, at length longer than the calyx. Corolla bell-shaped, with 5 large teeth or lobes, which are subacute and slightly reflexed. Plant sub-glabrous.

In waste places and roadsides, especially near ruins and in chalky and limestone districts. Rather rare, and probably planted in many of its localities. Sparingly distributed over the greater part of England; rare in Scotland, though found as far North as the counties of Forfar, Stirling, and Argyle.

England, Scotland, Ireland. Perennial. Summer.

Rootstock thick, fleshy, producing numerous subterranean stolons as thick as a man's finger. Stem 2 to 4 feet high, thick, simple at the base, dividing usually into 3, more rarely 2 or 4 branches, which are simple or again forked, or with short branches from between the pairs of leaves. Leaves 3 to 10 inches long, those on the branches smaller, in pairs alternately from opposite sides of the stem, one leaf of each pair much larger than the other. Peduncles in the forks of the stem and from between the pairs of leaves on the branches; the inflorescence is thus evidently definite, and the stem beyond each flower developed from a lateral bud. Calyx 5-cleft; lobes ovate-acuminate. Corolla about 1 inch long, much longer than the calyx, dull-purple tinged with green, especially near the base; lobes slightly unequal, recurved, acute. Stamens included; filaments slightly unequal, hooked at the apex; anthers whitish. Style and stigma green. Calyx spreading round the base of the purplish-black fruit, which is sub-globular, depressed at the apex, and slightly constricted at the junction of the carpels. Whole plant nearly glabrous or sparingly pubescent with very short glandular hairs.

Deadly Nightshade.

French, *Belladonne Vénéneuse.* German, *Tollkirsche.*

In seeking for the origin of the common name of this plant, we are universally met with the assertion that it refers to the practice of the Italian ladies in using it to enhance their charms as an accessory to the toilette. Belladonna is supposed to make the beautiful still more lovely, owing to its action on the pupils of the eye, which, on a slight application, it dilates, and renders brilliant and lustrous. Dr. Prior tells us that it is known in France as *guines de côtes*, being used as a cosmetic. Stapel *in Theophrasto* takes it for the *bellonaria* used by the priests of Bellona to infuriate themselves, and hence derives its name. Be this as it may, I am told that the use of the beautifying extract is not confined to the land of cloudless skies and sunny breezes; but may be seen on the toilette tables of our fashionable English ladies. Happily, this property is turned to good account by modern science, and in examinations of the eye for surgical purposes extract of belladonna is found to be of great service in dilating the pupil, as well as previous to the operation for cataract. Very many are the instances where death has ensued from partaking of this plant or its berries; and we cannot read the records of poison cases without being convinced of its terrible nature. The action of the poison on the human frame is peculiar, at first occasioning diminished sensibility, but sometimes febrile symptoms; it soon produces giddiness and delirium, accompanied by a remarkable enlargement of the pupils of the eyes. Dr. Taylor mentions several well-marked cases of poisoning by Belladonna, and states that in the autumn of 1846 many persons in the metropolis suffered from eating the ripe berries, sold openly in the streets as edible fruit. Two of these persons died, and the man who sold the berries was tried and convicted of manslaughter. The usual action of the plant is detailed by Dr. Taylor in his work on poisons, and illustrated by numerous cases. One, "a boy fourteen years old, ate, soon after breakfast, thirty of the berries which he had bought in the street. In about three hours it appeared to him as if his face was swollen; his throat became hot and dry, vision impaired; objects appeared double, and they seemed to revolve and run backwards. His hands and face were flushed, and his eyelids tumid; there were occasional flashes of light before his eyes. He tried to eat, but could not swallow on account of the state of his throat. In endeavouring to walk home, he stumbled and staggered, and he felt giddy whenever he attempted to raise his head. His parents thought him intoxicated; he was incoherent, frequently counted his money, and did not know the silver from the copper coin. His eyes had a fixed, brilliant, and dazzling gaze. He could neither hear nor speak plainly, and there was great thirst. He caught at imaginary objects in the air, and seemed to have lost all knowledge of distance. His fingers were in constant motion; there was headache, but neither vomiting nor purging. He continued in this condition for two days, when he began gradually to improve, and eventually recovered." In many cases strange spectral illusions occur, followed by complete delirium; but these symptoms are sometimes absent, and perfect insensibility shortly follows after swallowing the poison. A medical friend of ours, enthusiastic in the discovery of hidden truth, not long ago nearly fell a victim to his own experiments on the action of an extract of the leaves of *Atropa Belladonna*. He had previously made known his belief that animal charcoal is the best and safest antidote to vegetable poisons. He was, however, too much under the influence of the poison to think of his own remedy, and it was only by the timely interference of a member of his family, who knew of the discovery, that his life was saved. Belladonna is a favourite remedy in homœopathic medicine; but as the doses given are inappreciable, it would be difficult to trace any results from their administration. As an anodyne, Belladonna is frequently given in regular practice. It is said to alleviate pain in neuralgia, ticdoloureux, and some other disorders. It is used to some extent as an antispasmodic, and is admitted into the new British Pharmacopœia, both as an extract from the leaves, and also the dried root. It is supposed to be the plant that poisoned the troops of Marcus Antonius during the Parthian war. Plutarch gives a graphic account of the strange effects that followed its use. He says that "those who sought for herbs found few that they had been in the habit of eating, and in tasting unknown plants they found one that caused madness and death. He that had partaken of it at once lost all memory and knowledge, but, at the same time, would occupy himself in turning over and moving every stone he met with, as if engaged on some important pursuit. The camp was full of unhappy men, bending to the ground, and digging up and removing stones, till, at last, they were carried off by a bilious vomiting, when wine, the only remedy, was not at hand." According to Buchanan, in the reign of Duncan I., king of Scotland (afterwards murdered by the tyrant Macbeth), Harold the Dane invaded England, while his brother Sweno made a descent on Scotland. Landing in Fife, he gained a signal victory, and pursued the Scots to Perth, and possessing but little martial energy, he intrusted the conduct of affairs to his lieutenants Banquo and Macbeth. While the latter was employed in raising fresh forces, the former negotiated a truce, engaging, likewise, to supply provisions for the hostile army. The liquor sent proved to be a deadly potion for the Danes, from an infusion of the Dwale or Nightshade mixed with it. The invaders, suspecting nothing, drank deeply, were quickly overpowered and murdered by their treacherous foes. This story is, however, so far in the regions of fiction, that but little reliance can be placed on the facts. Shakespeare, however, evidently refers to this circumstance in Banquo's speech,—"Or have we eaten of the insane root that takes the reason prisoner?" The common name of the plant is significant enough of its evil reputation among our forefathers, and the provincial one of Devale or Dwale is of very similar origin, being from the French *deuil*, grief.

The properties of Deadly Nightshade are due to the presence of an alkaloid, found in white silky crystals. It requires 500 parts of water to dissolve it, but is easily dissolved by alcohol, ether, or diluted acids. The smallest quantity of the pure alkaloid will cause dilatation of the pupil, and a tenth of a grain swallowed by a man has occasioned symptoms of poisoning. Though so powerful in its action on the human body, the plant seems to affect some of the lower animals but little. Eight pounds of the herb are said to have been eaten by a horse without causing any injury, and an ass swallowed a pound of the ripe berries, no bad result following. Birds often eat the seeds of the plant without any apparent effect.

GENUS IV.—DATURA. *Linn.*

Calyx 5-sided-prismatic, 5-toothed at the apex, the base persistent, and spreading rotately in fruit, the greater part of the tube and the teeth splitting off circumscissily and deciduous. Corolla salvershaped-funnelshaped; tube elongated; limb spreading, 5- or 10-toothed; segments acute, plicate and convolute in æstivation. Stamens 5, inserted in the tube of the corolla, included or subexserted; filaments elongated; anthers not connivent, opening by longitudinal slits. Fruit a leathery capsule, generally muricated or prickly, 2-celled, with each cell commonly again more or less completely divided into 2 by the placentæ being joined to an outgrowth from the dorsal sutures of the carpels, so that the capsule appears 4-celled, splitting into 4 valves at the apex. Seeds numerous, sub-reniform.

Plants of various habit, with usually large solitary white, purple, or red flowers.

There seems to be no classical derivation of the name of this genus of plants. We find it given by various authors as coming from an Arabic name for a plant much resembling it in appearance.

SPECIES I.—**DATURA STRAMONIUM.** *Linn.*

PLATE DCCCCXXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXIV.

Annual. Stem herbaceous, simple below, trichotomously or dichotomously branched at the apex, with the branches dichotomous. Leaves ovate-rhomboidal, coarsely and unequally sinuate-dentate with large acute teeth or lobes. Flowers solitary in the forks of the stem and between the uppermost leaves. Fruit erect, subquadrangular-ovoid, clothed with numerous erect subulate-pointed spines.

Var. α, *genuinum.*

D. Stramonium, *Linn.* Sp. Pl. p. 255.

Stem green. Flowers white.

Var. β, *Tatula.*

D. Tatula, *Linn.* Sp. Pl. p. 256.

Stem purplish. Flowers pale-purple. Leaves more abrupt at the base and more strongly toothed than in var. α.

On manure-heaps, in cultivated ground and waste places, and by roadsides. Scarce, but occurring occasionally throughout England, but not persistent in its localities. Of var. β I have gathered a few specimens between Walmer and Kingsdown, Kent.

[England.] Perennial. Late Summer and Autumn.

Stem thick, erect, succulent, 6 inches to 3 feet high, with divaricate branches. Leaves unequal, stalked; the lower ones very large, often 6 to 9 inches long; upper ones smaller, and often apparently opposite; all with unequal very acute spreading teeth. Flowers shortly stalked. Calyx pale-green, membranous, tubular, $1\frac{1}{2}$ to 2 inches long, with 5 triangular acuminate teeth at the apex; and running down from the point of each tooth there is a raised longitudinal fold which presents a sharp-keeled exterior. Corolla 3 to 4 inches long, white; the tube cylindrical, slightly contracted towards the mouth of the calyx, and then gradually expanding into the limb, which has 5 plaits, one of which is continued into each of the 5 recurved teeth, which are acuminated into linear processes. Fruit 1½ to 2½ inches long, with a gorget at the base, formed by the persistent portion of the calyx-tube which becomes spreading-reflexed, the surface clothed with spines ¼ inch long or more: these spines are herbaceous but stiff, though scarcely vulnerant. Seeds very numerous, sub-reniform, flattened, dull greyish-black, coarsely pitted. Whole plant sub-glabrous, generally with the upper side of the branches, peduncles, and veins only hairy, but sometimes the leaves are sparingly clothed with very short hairs all over the surface.

The var. β is usually a larger and stronger plant, with rounder capsules and purple flowers; of course, it does not deserve to be included in the British flora; and even var. α cannot be considered as a perfectly naturalized plant, though it is of too frequent occurrence to be placed among the excluded species.

Common Thorn-apple.

French, *Stramoine à Feuilles sinuées.* German, *Gemeine Stechapfel.*

We appear to be indebted to our old friend Gerarde for the wide distribution of this plant all over the British Isles. It was introduced by him from seed brought from Constantinople by Lord Edward Zouch, whom Gerarde tells us, "of his liberalitie did bestow them on me, and it is that Thorn-apple that I have dispersed through this land, wherof at this present I have great use in surgery, as well in burnings and scaldings." Its appearance when in flower or fruit is so peculiar that it cannot well be mistaken. It flowers nearly all the summer, and has a very fœtid, disagreeable odour when bruised. All parts of the plant are poisonous, but the seed and fruit are considered the most noxious. Dr. Taylor tells us of a very remarkable case given by Dr. Zechmeister, attributing to the vapour of the full-blown flowers the symptoms of poisoning in a boy who was exposed to it for some time in a close room. Dr. Taylor gives us in his Manual on Poisons many instances of poisoning from the infusion of this plant. Accidents not unfrequently have occurred through swallowing it in mistake for other medicines. One instance he relates of a woman who took two cupfuls in senna tea. She was seized with giddiness, fainted, became insensible; but on the contents of the stomach being removed by the stomach-pump, she eventually recovered. The seeds have in several cases occasioned death. Sixteen grains of the seeds, swallowed by a child of two years old, caused death. And numerous other instances are related of the fatal or serious consequences of partaking accidentally or incautiously of this poisonous plant. Its properties are well known in India, where it grows abundantly, the thieves and assassins of that country not unfrequently administering it to their victims to produce insensibility. In America it is called the "Devil's Apple," from its terrible effects. The effects of Stramonium on the system are circumstantially related by Beverley, in his "History of Virginia." He says,—"The James-town weed, which resembles the Thorny-apple of Peru (and I take to be the plant so called), is supposed to be one of the greatest coolers in the world. This being an early plant, was gathered very young for a boiled salad, by some of the soldiers sent thither to quell the rebellion of Bacon, and some of them ate plentifully of it; the effect of which was a very pleasant comedy, for they turned natural fools upon it for several days. One would blow up a feather in the air, another would dart straws at it with much fury; another stark naked was seen sitting up in a corner like a monkey, grinning and making mouths. A fourth would fondly kiss and paw his companions, and sneer in their faces with a countenance more antic than any in a Dutch doll. In this frantic condition they were confined, lest in their folly they should destroy themselves. A thousand simple tricks they played; but after eleven days they returned to themselves again, not remembering anything that had passed." There can be no doubt, had the herb been fully grown, the end would have been far more tragical. A species of Thorn-apple nearly allied to this was probably used by the priests of Delphos to produce those paroxysms which they persuaded their devotees were manifestations of Divine power, and another was employed for a similar purpose by the Peruvians.

That the peculiar effect of Stramonium is to produce, first, a kind of fatuity, and then symptoms of narcotism, there is much evidence to prove. Thus Dr. Barton mentions a case of a child suddenly seized with idiocy, the pulse, tongue, and all other appearances natural—excepting the brain. The boy appeared to be happy, talking, laughing, and in constant motion, yet so weak he could not stand or walk without tottering. An emetic was administered, some seeds of the Thorn-apple were thrown up, and he quickly recovered. The seeds are decidedly the most powerful part of the plant. They contain an alkaloid, known to the chemists as *Daturia*, which may be obtained in crystals from the alcoholic infusion. One-eighth of a grain of this substance killed a bird in three hours. These seeds are used in medicine as narcotic and anodyne. Beneficial effects are said to follow their administration in the form of an extract in mania and epilepsy. It has been used both inwardly and outwardly, in allaying the pain of chronic rheumatism and neuralgia. It is, however, far too dangerous a remedy to be employed by non-medical persons. The chief application of Stramonium in recent times has been the method introduced from India of inhaling its smoke as a remedy for asthma, and we now frequently see in the chemists' shops, "Stramonium cigars," which, however, must be smoked by sufferers with great caution. Dr. Christison remarks, that this method of using Stramonium must have been known at an early period in Europe; for in 1542 Fuchs mentions that its vernacular name in Germany was *Rauch Apfelkraut* (Smoke Apple-wort). Its property of dilating the pupil of the eye has caused its occasional use by oculists; but it is much inferior to belladonna.

GENUS V.—HYOSCYAMUS. *Linn.*

Calyx bellshaped, constricted above the middle, 5-toothed at the apex, persistent, slightly accrescent but unchanged in form when in fruit. Corolla slightly irregular, funnelshaped; tube moderately long; limb somewhat spreading, 5-partite; segments blunt, slightly unequal, imbricated in æstivation. Stamens 5, inserted in the bottom of the tube of the corolla, included or exserted; filaments elongated; anthers not connivent, opening by longitudinal slits. Fruit a membranous capsule, smooth, 2-celled, dehiscing circumscissily by a firm shallow lid. Seeds very numerous, uniform.

Herbs, often viscous, and with a powerful heavy odour. Leaves alternate, toothed or angulated. Flowers in unilateral scorpioid racemes, yellow or ochreous, sometimes veined with purple.

The name of this genus of plants comes from the two Greek words, *υος* (*uos*), a sow, and *κυαμος* (*kuamos*), a bean.

SPECIES I.—**HYOSCYAMUS NIGER.** *Linn.*

PLATE DCCCCXXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXIII. Figs. 2, 3.

Radical leaves in a rosette, stalked, rhomboidal-ovate, sinuate-dentate; stem-leaves and bracts sessile, and more or less amplexicaul, oblong, with large spreading teeth. Flowers sub-sessile in the axils of the upper leaves or bracts, in a 2-ranked unilateral scorpioid raceme. Corolla nearly regular. Capsule swollen at the base; calyx-tube in fruit constricted about the middle.

Var. α, *genuinus.*

Corolla yellowish-white, veined with dark-purple with a purple eye.

Var. β, *pallidus.*

H. pallidus, *Kit.* in *Willd.* Enum. Hort. Berol. Vol. I. p. 228.

Flowers wholly pale-yellow, without purple lines.

On sandy ground, and dry waste places, pastures, and by roadsides. Locally abundant, and generally distributed over England; rare in Scotland, and not attaining the extreme North of that country. Var. β rare. Esher, Surrey (Mr. H. C. Watson). I once found a specimen near Portobello, Edinburgh. Smith also mentions that it has occurred at Fincham, in Norfolk.

England, Scotland, Ireland. Biennial or Annual.
Summer and Autumn.

Radical leaves very large, soft, flaccid, spreading, on conspicuous stalks; the lamina sometimes 6 or 8 inches long, or even more; stem-leaves smaller, sessile, and more or less clasping, with large projecting teeth. Flowers numerous, crowded while in flower, but becoming separated in fruit, so as to form a raceme like that common in the Boraginaceæ. Calyx with an ovoid tube and a funnel-shaped limb, divided about halfway down into 5 triangular teeth with spinous points. Corolla 1 to 1¼ inch across, funnel-shaped, ochreous, prettily veined with a network of dark-purple veins, except in var. β; the two lobes next the axis smaller than the others, and separated from each other by a much deeper sinus than that between the other lobes. Anthers purple. Capsule completely enclosed within the calyx, the upper portion constricted and separating like a lid. Fruiting-calyx with longitudinal veins; the limb reticulated. Seeds very numerous, small, brownish, coarsely punctured. Whole plant fœtid, pale-green, clammy; the stems, calyx, and veins of the leaves thickly covered with shaggy jointed hairs, the rest of the leaves sparingly hairy and puberulent.

Common Henbane.

French, *Jusquiame Noire.* German, *Schwarze Bilsenkraut.*

All parts of this well-known and pretty plant are poisonous. In small doses it acts as a sedative, diminishing nervous excitability, allaying irritation, tranquillizing the whole body, and producing a tendency to sleep. These effects are not usually followed by the headache and disorder of the digestive organs which succeed the use of opium in any form. Hence it is often preferred to that drug when an anodyne is required. In large doses it causes dimness of sight, faintness, delirium, and sometimes death. Accidental cases of poisoning by Henbane are not very common, as the smell and taste of the plant are so unpleasant as to prevent its being mistaken for any esculent vegetable; but the roots have been sometimes gathered and eaten. A woman is related to have collected a quantity in mistake for parsnips. They were boiled in soup, of which nine persons in the family partook, without remarking any particular taste. The whole of the party were soon seized with indistinctness of vision, giddiness, and sleepiness, followed by delirium and convulsion. The special effect of this poisonous plant is manifested in its tendency to produce a general paralysis of the nervous system. As an instance of the singular train of symptoms occasionally produced by it, Dr. Houlton states, that in a monastery where the roots had been eaten for supper by mistake, the monks who partook of them were seized in the night with the most extraordinary hallucinations, so that the place became like a lunatic asylum. One monk rang the bell for matins at 12 o'clock at night; of those of the fraternity who attended to the summons, some could read, others fancied the letters were running about like ants, and some read what they did not find in their books. The utility of Henbane as a medicinal agent has lately been denied by some French writers; but British experience seems to be in its favour, for we find it retained in the new Pharmacopœia as an extract and tincture. Probably its chief consumption nowadays is in spasmodic diseases, such as croup, cough, &c., and in combination with purgatives, such as the compound colocynth mixture. In such demand is the Henbane for medicinal purposes, that it is necessary to cultivate it, the wild plants not yielding sufficient supply. A great quantity is raised in gardens at Mitcham, in Surrey, and carefully dried for use. Two varieties are grown, one annual and one biennial; the latter is fit for use the second year. One hundred pounds of the fresh leaves yield about fourteen when dried. Gerarde, in his Herbal, dilates largely on the virtues of the Henbane. He tells us of a wonderful balm, to cure dene wounds and punctures made therefrom; and after giving the receipt for the making of this precious ointment, which may not now be sufficiently appreciated to justify its transcription, he says, "I send this jewell unto you women of all sorts, especially such as cure and helpe the poore and impotent of your countrey without reward. But unto the beggarly rabble of witches, charmers, and such like couseners, that regard more to get money than to helpe for charitie, I wish these few medicines far from their understanding and from those deceivers, whom I wish to be ignorant therein. But courteous gentlewomen, I may not for the malice I doe beare unto such, hide anything from you of such importance, and therefore take one more that followeth, wherewith I have done many and good cures, although of small cost; but regard it not the lesse for that cause." The curiously exciting effect first produced by the action of Henbane on the system is illustrated by a story told of a gardener and his wife, who lived happily and in perfect contentment, until one day the good man, wishing to dry some Henbane plants, hung them in his bedroom unsuspiciously for that purpose. From that hour domestic peace vanished, his wife became a perfect shrew, and he returned each curtain lecture with interest. Happily the Divorce Court was not then as accessible as it is now, or the speedy separation of the discontented parties would have rendered the solution of the mystery for ever impossible. Accidentally the Henbane was removed and peace restored. Each felt that, after all, the other was not so much to blame, and with returning amiability came increased happiness. It remained, however, for philosophers to trace the connection between the baneful effects of the Henbane exhalations and the irritable, quarrelsome condition of those who breathed them.

Whether the common Henbane be the poison referred to in Shakespeare by Hamlet's Ghost, is a matter of doubt; but we must associate the name with the murderous scene described as due to the "juice of cursed *hebenon* in a vial." Dryden speaks of it as

"The poisoning henbane and the mandrake dread."

Henbane has been used in past times in the same way as tobacco for smoking, and was, when first introduced, called Tobacco of Peru. As late as Gerarde's time it was called *henne belle*, a name apparently formed of *hen* and *bell*, suuggested by the resemblance of its persistent and enlarged calyx to the scallop-edged bells of the Middle Ages.

EXCLUDED SPECIES.

PHYSALIS ALKEKENGI. *Linn.*

"Naturalized on waste ground at Foles Hill, Warwickshire." (Th. Kirk, in "Phytol." Ser. I. Vol. II. p. 971.)

NICANDRA PHYSALOIDES. *Gärtn.*

Partially naturalized in waste and cultivated ground at Ryde, Shanklin, and other parts of the Isle of Wight. Dr. Bromfield has also gathered it at Hastings, and it has been found by myself at Northfleet, Kent.

HYOSCYAMUS ALBUS. *Linn.*

Found on ballast-hills at Sunderland by Mr. Robson.

ORDER L.—SCROPHULARIACEÆ.

Herbs, more rarely shrubs, with alternate, opposite, or verticillate leaves and no stipules. Flowers perfect, more or less irregular, commonly in racemes. Calyx free from the ovary, persistent, generally 5- or 4-toothed. Corolla hypogynous, monopetalous, generally 2-lipped, and then either ringent or personate, more rarely rotate or bellshaped or tubular; limb 5- or more rarely 4-lobed, the lobes commonly unequally united in various modes, always imbricated in æstivation. Stamens inserted in the tube of the corolla, generally 4, didynamous, sometimes with a rudimentary fifth stamen without an anther, sometimes only 2, rarely 5 with the 2 anterior ones longer than the other 3. Ovary 2-celled, the cells anterior and posterior, with the placenta in the centre. Style simple, stigma generally more or less distinctly 2-lobed, the lobes anterior and posterior; ovules generally numerous in each cell. Fruit a capsule, opening by 2, 3, or 4 valves or by pores. Seeds generally numerous—in the few cases where they are solitary, loose within the cells of the capsule. Embryo minute, straight or slightly curved, in the midst of copious albumen.

TRIBE I.—VERBASCEÆ.

Corolla rotate, nearly regular, upper lip covered by the others in bud. Stamens 5 (or 4 and didynamous), declinate. Inflorescence usually simple, indefinite. Leaves all alternate.

GENUS I.—VERBASCUM. *Linn.*

Calyx 5-partite or 5-cleft. Corolla rotate, with scarcely any tube; limb 5-partite, with the segments broad, rounded, flat or slightly concave. Stamens 5; filaments, or at least the 3 upper ones, woolly; anthers transverse, with the lobes confluent so as to be 1-celled. Stigma capitate, or decurrent on the style. Capsule globose or ovoid, opening septicidally and septifragally by 2 valves. Seeds very numerous, minute.

Herbs, commonly biennial, with the leaves often densely clothed with wool. Flowers commonly in fascicles arranged in racemes, yellow, white, or purplish.

The name of this genus of plants seems to be a corruption of the word *barbascum*, on account of the bearded or shaggy and downy surface of the leaves in most of the species.

SPECIES I.—**VERBASCUM THAPSUS.** *Linn.*

PLATE DCCCCXXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXXVII.
Billot, Fl. Gall. et Germ. Exsicc. No. 3441.
V. Schraderi, *Mey.* *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 586. *Reich. fil.* l. c.

Stem round, simple, rarely slightly branched. Radical leaves obovate or oblanceolate, generally contracted into short petioles, obtuse or sub-obtuse; lower stem-leaves similar; the others oval or elliptical, decurrent on the stem usually as far as the next leaf below, acute or shortly acuminate, entire or crenate. Flowers all subsessile, in fascicles arranged in a very dense spikelike raceme at the termination of the stem, and also of the branches when these are present. Pedicels all much shorter than the calyx when in flower. Limb of the corolla concave, three or four times as long as the tube; 3 upper stamens with the filaments clothed with white woolly hairs, and with transverse reniform anthers; 2 longer ones glabrous, with oblong-reniform oblique anthers, one-fourth the length of their filaments. Stigma capitate. Capsule large, scarcely exceeding the large calyx-segments. Whole plant densely felted with yellowish-grey rather long hairs stellate at the apex and firmly attached to the plant.

On dry banks, waste places, roadsides, and hedge-banks; in calcareous, sandy, and gravelly soils. Rather sparingly distributed over England and the South of Scotland as far North as Forfar, Stirlingshire, and the Isle of Arran. It has also occurred in Aberdeen and Moray, but it is thought not to be native there.

England, Scotland, Ireland. Biennial. Late Summer and Autumn.

Stem very stout, 18 inches to 4 feet high, simple, except in very luxuriant examples, in which there are sometimes a few branches from the axils of the upper leaves. Radical leaves 6 to 15 inches long, in a rosette, narrowed at the base into short stalks; stem-leaves all (except the lowest) strongly decurrent, the wing usually reaching from one leaf to the next, diminishing rapidly in size upwards, the uppermost ones passing insensibly into the bracts of the inflorescence, of which the lower ones are much longer than the calyces, the upper ones only slightly exceeding them. Spike 4 inches to 1 foot long, very thick and dense, with the flowers crowded, nearly sessile. Calyx-segments triangular, acuminated, very densely clothed with felted stellate hairs. Corolla $\frac{1}{2}$ to 1 inch across; limb concave, divided into obovate segments about halfway down, and clothed with stellate hairs on the outside. Capsule about the size of a large pea, roundish, ovate-ovoid, thickly clothed with stellate down, splitting into 2 valves, each of which has a slight fissure at the apex. Seeds all conical, with very prominent undulated longitudinal ribs. Whole plant appearing whiteish or grey, from the abundance of the felted pubescence.

Great Mullein.

French, *Molène Bouillon Blanc.* German, *Kleinblumiges Wollkraut.*

The etymology of the common name of this plant is somewhat curious, as given by Dr. Prior. He tells us that the Mullein was known as the *higtaper*, and that the French word *moleine* means the scab in cattle, and that the term *malandre* was applied to all sorts of diseases in cattle,—to lung diseases among the rest. The higtaper, being used for these, acquired its name of Mullein and Bullock's Wort. The Mullein was formerly valued in medicine on account ot its emollient properties. A decoction of the leaves was recommended by the physicians of the last century for diarrhœas. Sir James Smith says "that a pint of cow's milk, with a handful of the leaves of this Mullein boiled in it to halt a pint, sweetened, strained, and taken at bedtime, is a pleasant, emollient, and nutritious medicine for allaying a cough, or removing pain and irritation." In more ancient times much higher virtues were attributed to this plant. Culpepper gives us a list of most extraordinary cures performed by its agency, and Gerarde remarks, that "there be some who think that this herbe being but carryed aboute one, doth help the falling sickness, especially the leaves of that plant, which hath not as yet borne flowers, and gathered when the sun is in Virgo and the moon in Aries, which thing, notwithstanding, is vaine and superstitious." The Mullein is sometimes known as the Torch-blade or King's Taper, which doubtless have the same meaning as the older name of Higtaper. Parkinson tells us that "Verbascum is called of the Latins *Candela regia* and *Candelaria*, because the elder age used the stalkes dipped in such to burne, whether at funeralls or otherwise." The word *hig* may mean high; so that it is sometimes called "*High Taper*," either from its candle-like appearance when growing by itself, pointing straightly upwards with its flame-like crown of flowers, or from the facts before mentioned as to its use. The woolly covering of the leaves and stem was used for lamp wicks long before the introduction of cotton and lamps, and candles provided with wicks of this kind were supposed to be used by witches in their incantations; hence another name is recorded,—that of "*Hag Taper.*" The specific name of *Thapsus* has been derived from Thapsus in Africa, near which place it is said to have formerly abounded. It is one of the many herbs said to poison, or rather to stupefy fish. According to Alexander Trallianus, its ashes made into a soap will restore hair which has become grey, to its original colour.

SPECIES II.—**VERBASCUM PULVERULENTUM.** *Vill.*

PLATE DCCCCXXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXVII.
V. floccosum, *Waldst. & Kit. Koch*, Syn. Fl. Germ. et Helv. ed. ii p. 588. *Reich. fil.* l. c.

Stem round, paniculately branched, with the branches spreading and curving upwards. Radical leaves obovate or oblanceolate, gradually contracted into short petioles, obtuse or subacute; lower stem-leaves similar, the others oval or roundish, sessile, not decurrent, acuminate or cuspidate, entire or crenate. Flowers shortly stalked and subsessile, in fascicles arranged in a somewhat interrupted spikelike raceme at the termination of the stem and branches, the whole forming a wide lax pyramidal panicle. Longest pedicels almost as long as the calyx when in flower. Limb of the corolla flat, five or six times as long as the tube. Stamens with all the filaments clothed with white woolly hairs, and with uniform reniform transverse anthers. Stigma capitate. Capsule small, longer than the small calyx-segments. Whole plant densely felted with greyish-white very minute stellate hairs, loosely attached to the plant, and easily rubbed off in flakes, very dense on the calyx and base of the pedicels.

In waste places, borders of fields, and roadsides. Local. Plentiful round Norwich, but not known to occur, except in the counties of Norfolk and Suffolk. Said to be found in the den of Cullen, in Scotland; but if so, doubtless introduced there.

England, Scotland. Biennial. Late Summer
and Autumn.

Stem stout, 18 inches to 5 feet high, much branched. Radical leaves 6 inches to 1 foot long, stalked, resembling those of V. Thapsus, but not so white above when young, and with the stellate hairs much shorter and more easily rubbed off; stem-leaves numerous, even the upper ones not decurrent, though semi-amplexicaul; intermediate ones very shortly stalked, generally remarkably acuminate, at length sub-glabrous above, with irregular patches of very minute felted stellate hairs. Bracts at the base of the clusters of flowers linear-lanceolate, minute. Flowers bright-yellow, $\frac{3}{4}$ inch across, with the limb much flatter than in V. Thapsus. Stamens orange-scarlet with white hairs; none of the anthers oblique. Pedicels lengthened in fruit until some of them are as long as or twice as long as the calyx, while others remain extremely short. Calyx-segments very short, strapshaped-lanceolate. Capsule $\frac{1}{5}$ inch long, longer than the calyx-segments, thinly clothed with stellate hairs.

Remarkable for the white floccose stellate down, which is easily rubbed off, and gives the plant a mouldy appearance.

Hoary Mullein.

French, *Molène Pulvérulente.*

SPECIES III.—VERBASCUM LYCHNITIS. *Linn.*

PLATE DCCCCXXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXLVIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 2893.

Stem angular, paniculately branched, with the branches erect. Radical leaves subrhomboidal-oblanceolate or oval, gradually contracted into short petioles, sub-obtuse or acute; lower stem-leaves similar; the others oval or elliptical, sessile, not decurrent, acute or acuminate, irregularly crenate or repand-crenate. Flowers shortly stalked, in fascicles arranged in a slightly-interrupted raceme at the extremity of the stem and branches, the whole forming a narrow pyramidal panicle. Longest pedicels about twice as long as the calyx at the time of flowering. Limb of the corolla flat, four or five times as long as the tube. Stamens all with the filaments clothed with white woolly hairs and with uniform reniform transverse anthers. Stigma capitate. Capsule small, twice as long as the small calyx-segments. Plant with the leaves subglabrous above, sprinkled, especially on the veins, with minute stellate hairs, and more thickly clothed with similar hairs beneath; pedicels and calyx-segments densely clothed with similar hairs.

In waste places, open woods, borders of fields, and roadsides. Local. In the counties of Somerset, Sussex, Kent, Surrey, Suffolk, Stafford, Denbigh, and also reported from several other counties, but as doubtfully native. In Scotland, about the rocks of Stirling and Dunbarton Castles, but no doubt introduced.

England, [Scotland.] Biennial. Summer.

Stem stout, 18 inches to 4 feet high, with elevated lines decurrent from the midribs of the leaves, clothed with floccose very minute stellate down. Radical leaves large, frequently a foot long; stem-leaves smaller, and, as well as the radical ones, green above, from being nearly destitute of hairs, hoary beneath, where hairs are present; even the uppermost leaves not amplexicaul; the intermediate ones shortly stalked, and the lowest attenuated into petioles like the root-leaves. Flowers very numerous, $\frac{1}{2}$ inch across, cream-white, though on the Continent it is said to vary with yellow flowers. Stamens whitish, with white hairs. Pedicels of unequal length in the fascicle, as in V. pulverulentum, the longest about twice as long as the calyx. Capsule $\frac{1}{4}$ inch long, ovate-ovoid, clothed with stellate down, fully twice as long as the strapshaped calyx-segments.

White Mullein.

French, *Molène Lychnite.* German, *Lichtnelkenartiges Wollkraut.*

SPECIES IV.—**VERBASCUM NIGRUM.** *Linn.*

PLATE DCCCCXL.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXLIX. Fig. 1.

Stem angular above, simple or rarely branched. Radical leaves oblong-ovate or oblong-lanceolate, subcordate at the base, on long stalks, subacute, irregularly and coarsely crenate or doubly crenate; lower stem-leaves similar to the radical ones, but on shorter stalks; intermediate ones very shortly stalked, ovate-acute or acuminate, crenate or crenate-serrate; upper ones sessile, not decurrent, smaller, acuminate. Flowers shortly stalked, in fascicles arranged in a long nearly continuous spike-like raceme at the extremity of the stem, and also of the branches when these are present. Longest pedicels about as long as the calyx at the time of flowering. Limb of the corolla flat, five or six times as long as the tube. Stamens with all the filaments clothed with purple woolly hairs and with uniform sub-reniform transverse anthers. Stigma notched at the apex. Capsule rather small, nearly twice as long as the small strapshaped calyx-segments. Whole plant more or less thickly covered with hairs stellate at the apex, firmly attached to the plant, usually felted on the under side of the leaves and the pedicels.

Roadsides and borders of fields and dry pastures in chalky or gravelly soils. Rather rare, but generally distributed throughout the southern half of England. In the northern counties and in Haddingtonshire and Edinburgh it is probably introduced. It is probably extinct in the former Scotch locality, as I have searched for it repeatedly in vain.

England, Scotland (?) Perennial or biennial. Late Summer
and Autumn.

Stem 18 inches to 3 feet high, with elevated lines decurrent from the midrib of the petiole, and fainter ones from its margins. Lower leaves 4 inches to 1 foot long, abruptly contracted and usually subcordate at the base, with petioles often as long as the lamina; stem-leaves decreasing rapidly in size upwards; the upper ones small and sessile, passing gradually into the small acuminated bracts at the base of the fascicles of flowers. Spike usually very long, slightly interrupted at the base, dense towards the apex. Calyx-segments strapshaped. Flowers ½ to ¾ inch across, varying from bright-yellow to cream-yellow, the filaments erect, clothed with bright-purple hairs. Capsule nearly ¼ inch long, ovoid, scarcely tapering towards the apex. Plant varying much in the degree of pubescence, which is rarely sufficient to produce a greyish colour.

A remarkable variety, β tomentosum (Bab.), has been found by Professor Babington at St. Ann's, Alderney, and by the Rev. W. W. Newbould at Chichester; in these the leaves are quite felted beneath, as much so as in V. Thapsus, the flowers are also rather smaller than in the ordinary form.

Dark Mullein.

French, *Molène Noire.* German, *Schwarzes Wollkraut.*

SPECIES V.—VERBASCUM VIRGATUM. *With.*

PLATE DCCCCXLI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLV.
V. blattarioides, *Lam.* *Reich. fil.* l. c. p. 14.

Stem erect, simple, or more rarely branched. Radical leaves oblanceolate, insensibly attenuated into winged petioles, subobtuse; lower stem-leaves attenuated at the base, and subpetiolate; intermediate ones oblong, acute, sessile and semi-amplexicaul; uppermost ones ovate or lanceolate, cordate, semi-amplexicaul and very shortly decurrent acuminate; all crenate or dentate or doubly dentate; the lowest ones sometimes slightly pinnatifid towards the base. Flowers shortly stalked, in fascicles or solitary, arranged in a rather dense somewhat interrupted raceme at the extremity of the stem and also of the branches when the latter are present. Pedicels ascending-erect, not exceeding the calyx at the time of flowering, nor the capsule in fruit. Limb of the corolla flat, six or seven times as long as the tube. Stamens with all the filaments clothed with purple woolly hairs; the 3 upper ones with reniform transverse anthers; the 2 lower ones with fewer hairs and with oblong-reniform anthers attached obliquely. Stigma capitate. Capsule large, sub-globular, half as long again as the large triangular-lanceolate calyx-segments. Plant subglabrous; the leaves and stem glandular-puberulent; the rachis, pedicels, bracts, calyx-segments, ovary, and base of style, clothed with short gland-tipped hairs.

By roadsides and in waste places. Rare, and probably native only in Cornwall, Devon, and Somerset; though it occurs in many other counties as far North as Denbigh, Salop, Stafford, and Lincoln.

England. Biennial or annual. Summer and Autumn.

Stem 2 to 5 feet high, slightly angular. Root-leaves, including the indistinct petiole, 3 inches to 1 foot long; stem-leaves considerably smaller, all of them varying very much in the incision of the margins. Raceme long, the bracts ovate or lanceolate, acuminate. Pedicels usually 2 to 6 together or more rarely solitary. Flowers bright-yellow, 1 to 1¼ inch across. Capsule the size of a pea, nearly globular. Plant green, clothed with distant very short glandular hairs; the whole of the inflorescence with numerous gland-tipped hairs.

Large-flowered Mullein.

SPECIES (?) VI.—VERBASCUM BLATTARIA. *Linn.*

PLATE DCCCCXLII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 56.

Stem erect, simple or more rarely branched. Radical leaves oblanceolate, insensibly attenuated into short petioles; lower leaves attenuated at the base and sub-petiolate; intermediate ones oblong-acute, sessile, semi-amplexicaul; uppermost ovate or lanceolate, cordate, semi-amplexicaul and not sensibly decurrent on the stem; all crenate or doubly dentate; the lowest sometimes slightly pinnatifid towards the base. Flowers long-stalked, always solitary, in a lax raceme at the extremity of the stem and also of the branches when the latter are present. Pedicels ascending-spreading, longer than the calyx at the time of flowering, and twice as long as the capsule in fruit. Limb of the corolla flat, five or six times as long as the tube. Stamens with all the filaments clothed with woolly hairs, the 3 upper with reniform transverse anthers, the 2 lower with fewer hairs and with oblong reniform anthers attached obliquely. Capsule large, sub-globular, half as long again as the large strapshaped calyx-segments. Plant glabrous, except the rachis, pedicels, bracts, calyx-segments, ovary, and the base of the style, which are clothed with rather short gland-tipped hairs.

By roadsides and in waste places. Rare. Probably wild in the South of England and in South Wales, but frequently occurring in other places as an escape from cultivation.

England. Biennial or annual. Summer and Autumn.

V. Blattaria is probably distinct from V. virgatum only as a sub-species. Mr. Bentham and MM. Cosson and Germain consider them mere varieties. V. Blattaria is usually a smaller and more slender plant, with the flowers rather smaller, often pinkish-white, though yellow is the normal colour ; the capsule is scarcely so large ; the upper leaves less acuminate, and not even slightly decurrent as in V. virgatum ; the pedicels are always solitary, more slender, longer and more spreading than those of V. virgatum, with longer glandular hairs ; the calyx-segments narrower, especially towards the base ; and the lower leaves and base of the stem nearly destitute of the short glandular puberulence which is present in V. virgatum. The raceme of fruit in V. Blattaria is usually longer, often occupying two-thirds of the stem.

Moth Mullein.

French, *Molène Blattaire.* German, *Schabenkraut.*

HYBRID *a.*

VERBASCUM THAPSO-LYCHNITIS. *Mert. & Koch.*

PLATE DCCCCXLIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXI.
V. spurium, *Koch,* Syn. Fl. Germ. et Helv. ed. i. p. 511.
V. Thapsoides, *Huds.* Fl. Angl. p. 90.
V. Lychnitis, β Thapsi, *Sm.* Engl. Fl. Vol. I. p. 309.
V. Lychnitis, β Thapsoides, *With. fil.* in Arr. Brit. Pl. ed. vi. Vol. II. p. 341.

Intermediate between V. Thapsus and V. Lychnitis ; distinguished from V. Thapsus by the stem being paniculately branched with erect branches ; the leaves resembling in shape those of V. Lychnitis, and although distinctly decurrent, more shortly so than in V. Thapsus, green above, thinly sprinkled with stellate hairs, and felted beneath, but with minute hairs ; calyx-segments smaller ; corolla nearly flat ; flowers shortly stalked. It differs from V. Lychnitis in the stem being scarcely angular, the stem-leaves, or at least the upper ones, strongly decurrent ; the upper surface of the leaves more or less thickly sprinkled with stellate hairs, which are larger than those of V. Lychnitis ; the flowers more shortly stalked, and in much denser and thicker spike-like racemes; the calyx-segments broader at the base; the corolla larger, yellow; the 2 lower stamens with oblique anthers.

Growing with V. Thapsus and V. Lychnitis. Said by Hudson to be everywhere in Kent; but I have only gathered it at Greenstreet Green and other places about Darenth, Kent, where I have seen it repeatedly.

England. Biennial. Late Summer.

HYBRID *b*.

VERBASCUM THAPSO-NIGRUM. *Schiede.*

PLATE DCCCCXLIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXVII. Fig. 2.
V. collinum, *Schrad.* Monog. Verb. p. 35. *Reich.* l. c.
V. Thapsus, β Thapso-nigrum, *With.* Arr. Brit. Pl. ed. vi. Vol. II. p. 90.

Intermediate between V. Thapsus and V. nigrum. It differs from the former in the stem being paniculately branched, angular above; the radical leaves being abruptly narrowed into the petiole; the intermediate leaves sessile, and the upper ones only slightly decurrent; and all with the felt of hairs less dense; the flowers in interrupted spike-like racemes; the calyx-segments much narrower, strapshaped-lanceolate, the flowers not concave; the stamens all with purple hairs; anthers all transverse; the capsules small, and some of them with a stalk as long as themselves. From V. nigrum it differs in the stem being more branched; the lower leaves not cordate at the base; the upper leaves shortly decurrent; the flowers on shorter pedicels; the calyx-segments broader; the 2 lower stamens hairy only on one side.

Found by Mr. Dawson Turner at Barton, near Swaffam, Norfolk. I have found it only near Farnborough, Kent, and in Headley Lane, Meikleham, Surrey.

England. Biennial. Late Summer.

HYBRID *c*.

VERBASCUM NIGRO-PULVERULENTUM .*Sm.*

PLATE DCCCCXLV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXIX. Fig. 2.
V. nigro-floccosum, *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 591.
V. Schottianum, *Schrad.* Mon. Verb. p. 13. *Reich.* l. c.
V. pulverulentum, β nigro-pulverulentum, *Sm.* Engl. Fl. Vol. I. p. 310.

Intermediate between V. pulverulentum and V. nigrum. Differing from the former in the stem and branches being more angular, often tinged with purple; the leaves with less floccose pubescence, and the root-leaves distinctly and abruptly stalked, often cordate; the flowers smaller, and the stamens with purple hairs. From V. nigrum it differs in the stem being paniculately branched with the branches curving upwards, the root-leaves being broader and less deeply cordate at the base; the pubescence more loosely attached to the plant, and coming off in masses.

At Hellesdon, near Norwich, where it was refound by the Rev. Kirby Trimmer in 1863, to whose kindness I owe living specimens: and in various parts of Norfolk occasionally, according to Smith.

England. Perennial. Late Summer.

HYBRID *d.*

VERBASCUM NIGRO-LYCHNITIS. *Schiede.*

PLATE DCCCCXLVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXIV.
V. Schiedianum, *Koch,* "Taschenbuch, p. 371."
V. nigrum, var. ovatum, *Koch,* Syn. ed. i. p. 514.
V. nigrum, var. nigro-Lychnitis, *Bab.* Man. Brit. Bot. ed. v. p. 240.
V. Thapsus, var. nigro-Lychnitis, *With.* Arr. Brit. Pl. ed. vi. p. 340.

Intermediate between V. Lychnitis and V. nigrum. Differing from the former in the leaves being abruptly contracted into long petioles at the base; the hairs of the pubescence longer and less white, so that the leaves are scarcely hoary beneath; the flowers yellow; the stamens with purple hairs on the filaments, and the racemes more dense. From V. nigrum it differs in the stem being paniculately branched and more acutely angular above; the lower leaves not being cordate, on shorter petioles; the leaves more glabrous above, and with the pubescence beneath shorter; the panicle pyramidal; the racemes more interrupted; the flowers smaller; the calyx more densely woolly with whiter wool.

Found by Mr. Dawson Turner near Yarmouth; and, according to Professor Babington, it has been found in Sussex. I have gathered it only at Green-street Green, near Darenth, Kent.

England. Perennial. Late Summer.

TRIBE II.—CHELONEÆ.

Corolla tubular, more or less bilabiate, not spurred or saccate at the base; upper lip covering the others in bud. Stamens 4, didynamous, with the rudiment of a fifth which bears no anther. Inflorescence compound, primarily indefinite, and secondarily definite. Leaves, or at least the lower ones, opposite, rarely verticillate.

GENUS II.—SCROPHULARIA. *Tournef.*

Calyx 5-partite or 5-cleft. Corolla tubular, sub-bilabiate; tube sub-globular or urceolate; limb with the upper lip the largest, 2-lobed, the lower with 3 short flat lobes, of which the lateral ones are erect and the lower one spreading or reflexed. Stamens 4, didynamous, generally with a fifth reduced to a flattened filament terminating in a free scale-like appendage at the base of the upper lip, sometimes absent. Anthers transverse, with the lobes confluent, so as to be 1-celled. Stigma capitate, entire. Capsule generally conical, acute, opening septicidally and septifragally by 2 valves. Seeds very numerous, minute.

Herbs, with the lower leaves opposite. Flowers rather small, lurid purple, green, yellow, or reddish, in axillary cymes arranged so as to form a slender panicle.

The name of this genus of plants is due to the supposed efficacy of the species in curing scrofula.

SECTION I.—EU-SCROPHULARIA. *Reich.*

Corolla-tube not contracted at the throat; limb irregular, with upper lip longer. Stamens 4, with the rudiment of a fifth, resembling a scale, inserted on the upper side of the corolla-tube.

SPECIES I.—SCROPHULARIA AQUATICA. *Linn.*

PLATE DCCCCXLVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCL. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1720.
S. Balbisii, *Hornem.* *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 593.

Rootstock not tuberous. Stem acutely quadrangular, with the angles narrowly winged. Leaves oblong or oval-oblong, with winged petioles, obtuse or subacute, crenate or crenate-serrate, sometimes with a few small lobes proceeding from the wing of the petiole so as to be lyrate-pinnatifid; the lower ones frequently cordate at the base, obtuse. Flowers in rather dense axillary corymbose cymes arranged in an elongate lax panicle. Lower bracts leaf-like; upper ones small, linear. Pedicels stout, with a few gland-tipped hairs, not more than twice as long as the calyx at the time of flowering. Divisions of the calyx orbicular, with broad scarious margins. Corolla three times as long as the calyx, not contracted at the throat. Abortive stamen orbicular or reniform-orbicular, spathulate, entire or faintly emarginate. Capsule globose-conical, gradually acuminated. Plant glabrous or puberulent.

By the sides of ditches, ponds, and streams, and other damp places. Very common in the South of England; more rare in the North, where it extends to Northumberland and Lancashire.

England, Ireland. Perennial. Summer and Autumn.

Rootstock not much thickened nor nodose, producing one or more stems. Stem stout, 18 inches to 5 feet high, with a narrow wing at each of the four angles, generally unbranched, with axillary fascicles of a few leaves, which sometimes grow out into branches. Leaves 2 to 12 inches long, much exceeding their petioles, with the principal veins impressed; glabrous, or puberulent with very short hairs. Cymes opposite, dichotomous with the branches racemose and slightly elongating in fruit. Corolla ½ inch long, dark maroon (rarely yellow), with the base of the tube greenish; the upper lip large and bifid, much exceeding the three lower lobes, which are nearly equal. Staminode inserted at the base of the upper lip, roundish- or reniform-spathulate, generally entire, but sometimes truncate or even emarginate at the apex. Capsules about the size of peppercorns, tapering to a sharp point, on pedicels not more than twice their own length. Plant deep-green, the principal veins of the leaves very conspicuous below, the ultimate ones slightly apparent.

Common Water Betony.

French, *Scrophulaire Aquatique.* German, *Wasser Braunwurz.*

The Scrophulariæ are commonly known by the name of Brownworts and Figworts. The former name is said to arise from the brown colour of the stems and flowers; but Dr. Prior thinks more probably from its growing so abundantly about the *Brunnen* or public fountains of German towns and villages. All the figworts are described as being fœtid and acrid to such an extent as to be refused by cattle; but cows are sometimes seen browsing on the tender shoots of the Water Figwort even when better pasture is at hand. In old pharmacy the leaves of the Water Betony had a reputation as a cosmetic, and it is said that "if the face be washed with the juice thereof, it taketh away the rednesse and deformity of it."

SPECIES II.—SCROPHULARIA EHRHARTI. *Stev.*

PLATE DCCCCXLVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXII.

S. aquatica, *Fries,* Sum. Veg. Scand. p. 17. *Koch,* Syn. Fl. Germ. et Helv. ed. i. p. 515. *Reich.* Fl. Excurs. p. 377.

S. alata, "*Gilb.*" *Reich. fil.* l. c. p. 25.

S. umbrosa, *Dumortier ?* Fl. Belge, p. 37.

Rootstock not tuberous. Stem acutely quadrangular, with the angles broadly winged. Leaves ovate or ovate-oblong, with winged petioles, acute, serrate or crenate-serrate, without lateral lobes from the wing of the petiole; the lower ones often sub-cordate at the base and generally obtuse. Flowers in lax divaricate axillary corymbose cymes arranged in an elongate lax panicle. Bracts all like the leaves. Pedicels slender, with a few gland-tipped hairs, 3 to 6 times as long as the calyx at the time of flowering. Divisions of the calyx obovate-orbicular, with broad scarious margins. Corolla twice as long as the calyx, not contracted at the throat. Abortive stamen deeply notched, transversely linear-reniform. Capsule globose, obtuse and apiculate. Plant glabrous.

By the banks of streams and wet places. Local. It has occurred at Wilmington, Sussex; formerly in Belsize Park, Middlesex; near Truestry, Herefordshire; Staffordshire; near Preston, Lancashire; Ilkley, near Gisborne, Yorkshire; banks of the Whitadder, Berwick-on-Tweed; banks of the Almond, about Cramond Bridge, near Edinburgh.

England, Scotland. Perennial. Late Summer and Autumn.

This plant has been very unaccountably confounded with S. aquatica of Linnæus, but has much more the habit of S. nodosa. It is usually a more luxuriant plant than S. aquatica, often with the axillary branches developed. The stems are more broadly winged. The petioles are much more broadly winged, and appear never to produce small lateral lobes, as is sometimes the case in S. aquatica. The leaves are much broader near the base, and often all, except those on the young radical shoots, acute. The bracts are all leaflike. The cymes are much more lax, with long slender divaricate pedicels. The capsules are blunt and apiculate, not gradually acuminate. The corolla is about $\frac{1}{4}$ to $\frac{1}{3}$ inch long, with a greater portion of the tube green than in S. aquatica, and the upper lip does not project nearly so far beyond the lower.

It also differs in the shape of the barren stamen, which is divided into 2 divaricate lobes with a slight notch between them.

S. Neesii, of Wirtgen, differs, in having the lobes of the staminode more erect, not divaricate; but it is doubtful if it be really distinct. I have seen specimens of S. Ehrharti only from the Scotch locality, but Botanists will do well to examine the abortive stamen in those from other places, to see if the staminode has the lobes always divaricate.

Ehrhart's Water Betony.

SPECIES III.—SCROPHULARIA NODOSA. *Linn.*

PLATE DCCCCXLIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXIX.
Billot, Fl. Gall. et Germ. Exsicc. No. 1718.

Rootstock tuberous, nodose. Stem acutely quadrangular, the angles without wings. Leaves ovate or triangular-ovate, with scarcely winged petioles, acute, serrate or crenate-serrate, abrupt or sometimes subcordate at the base, without lateral lobes from the petiole. Flowers in lax axillary cymes arranged in an elongate lax panicle. Lowest bracts resembling the leaves; upper ones linear. Pedicels rather slender, with gland-tipped hairs only at the base, two to five times as long as the calyx at the time of flowering. Divisions of the calyx oval-orbicular, with narrow scarious margins. Corolla three times as long as the calyx, not contracted at the throat. Abortive stamen transversely deltoid-reniform, very slightly notched. Capsule globose-conical, gradually acuminated. Plant glabrous.

In damp shady places, woods, by the sides of ditches, &c. Very common, and generally distributed; but not reaching to Orkney and Shetland.

England, Scotland, Ireland. Perennial. Summer and Autumn.

Rootstock much thickened, greenish-white, with fleshy knobs. Stem 18 inches to 3 feet high, not winged as in the two preceding species, but with a raised line at the angles. Petioles slightly winged at the very top, but not at all so for the lower two-thirds. Leaves 2 to 7 inches long, tapering from a little above the base to the apex, coarsely and unequally or doubly serrate, with the teeth largest near the base, the veins deeply impressed on the upper surface. Flowers $\frac{3}{8}$ inch long, green, suffused with dull-brown towards the apex. The cymes are less divaricate than those of S. Ehrharti, and the peduncles much more erect, and only one or two of the lower bracts resemble the leaves. The capsule is gradually acuminated into a sharp point, as in S. aquatica, not blunt and apiculate as in S. Ehrharti. Plant green, glabrous, except the rachis, peduncles, and lower portion of the pedicels, which are clothed with very short gland-tipped hairs.

Knotty-rooted Figwort.

French, *Scrophulaire Noueuse.* German, *Knotige Braunwurz.*

The leaves of this species of Figwort are somewhat purgative and emetic. They are employed still by the peasantry of some districts as an application to burns and swellings, being simply bruised. The Welsh have so much faith in the virtues of the plant, that they call it "Deilen Dda," good leaf. The high reputation it once had in English herbals has been lost. We read in some of the oldest of these, that "Venus owns the herb, and the Celestial Bull will not deny it; therefore a better remedy cannot be for the King's Evil." Gerarde tells us that "Divers doe rashly teach, that if it be hanged about the necke or else carried about one, it keepeth a man in health." Perhaps the most interesting association with this plant is an historical one connected with its tuberous roots, which, during the thirteen months' siege of Rochelle by the army of Richelieu, in the year 1628, yielded support to the garrison for a considerable period; hence the French call it "Herbe du Siége." The taste and smell of the tubers are, however, so unpleasant, that they would never be resorted to but under extreme circumstances.

SPECIES IV.—SCROPHULARIA SCORODONIA. *Linn.*

PLATE DCCCCL.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXIII. Fig. 2.

Rootstock not tuberous. Stem bluntly quadrangular, with the angles not winged. Leaves ovate-triangular or triangular, with the petioles not winged, acute, very coarsely doubly crenate or doubly crenate-serrate, without lateral lobes from the petiole; the lower ones often obtuse, very deeply cordate at the base, and the upper ones generally slightly so. Flowers in lax divaricate axillary corymbose cymes arranged in an elongate lax panicle. Bracts all like the leaves. Pedicels slender, very thickly clothed with gland-tipped hairs, two to three times the length of the calyx at the moment of flowering. Divisions of the calyx oval, with broad scarious margins. Corolla three times as long as the calyx, not contracted at the throat. Abortive stamen orbicular or reniform-orbicular, spathulate, entire or emarginate. Capsule sub-globular, abruptly acuminated, and apiculate. Stem and leaves hairy, clothed with jointed glandular hairs; pedicels and calyx with short gland-tipped hairs.

In shady lanes and moist places. Rare. Cornwall, Devon, and Tralee, co. Kerry; plentiful in Jersey and Guernsey.

England, Ireland. Perennial. Summer and Autumn.

Stem 18 inches to 4 feet high, nearly round, with 4 slightly elevated lines. Leaves 2 to 6 inches long, sometimes with the margins almost lobed, at other times only doubly crenate or crenate-serrate, finely hairy on both sides, especially beneath. Flowers ½ inch long, resembling those of S. aquatica, but the upper lip is 2-partite, being divided to the base instead of only to the middle. In the general habit and inflorescence it bears some resemblance to S. Ehrharti: the capsule, though it is not gradually tapering, but suddenly acuminated, could scarcely be called obtuse and apiculate, as in that species. The shape of the leaves differs from that of all the other species, though they sometimes bear a slight resemblance to those of S. nodosa. The hairiness of the stem and leaves distinguishes it from all the species which have been mentioned.

Balm-leaved Figwort.

French, *Scrophulaire à Feuilles de Sauge.*

SECTION II.—CERAMANTHE. *Reich.*

Corolla-tube contracted at the throat; limb nearly regular. Stamens 4, without any rudiment of a fifth.

SPECIES V.—SCROPHULARIA VERNALIS. *Linn.*

PLATE DCCCCLI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXVI. Fig. 2.
Ceramanthe vernalis, *Reich.* "Sax. Fl. p. 230." *Reich. fil.* l. c. p. 27.

Rootstock not tuberous. Stem bluntly quadrangular, with the angles not winged. Leaves ovate-deltoid, with unwinged petioles, acute, coarsely doubly serrate or crenate-serrate, without lateral lobes from the petiole, the lower ones cordate at the base. Flowers in dense axillary corymbose cymes arranged in an elongate lax panicle. Bracts all like the leaves. Pedicels slender, thickly clothed with long gland-tipped hairs, shorter than the calyx at the time of flowering. Divisions of the calyx oblong, without scarious margins. Tube of the corolla twice as long as the calyx, urceolate. Abortive stamen absent. Capsule ovate-conical, acute. Stem, petioles, leaves, and peduncles clothed with jointed glandular hairs; pedicels and calyces with gland-tipped hairs.

In waste places and hedges. Rare, and very doubtfully native. It has occurred in numerous counties both in England and Scotland, but apparently never under circumstances which do not lead to a suspicion of its adventitious origin.

[England, Scotland.] Perennial. Spring and Summer.

Stem stout, 18 inches to 3 feet high, with 4 raised lines, but no wings. Leaves nearly as broad as long, 1½ to 2½ inches in length, sometimes so deeply divided as to be almost lobed. Corolla ⅜ inch long, pale-yellow, with very short nearly equal lobes, the two longer stamens and style slightly exserted. Capsule about the size of a peppercorn, more conical than in the other species. Plant pale yellowish-green, the leaves very thin and flaccid.

Yellow Figwort.

French, *Scrophulaire Printanière.* German, *Frühlings Braunwurz.*

TRIBE III.—DIGITALEÆ.

Corolla tubular, not spurred or saccate at the base, scarcely bilabiate; upper lip covered by the under one in bud. Stamens 4, didynamous. Inflorescence simple, indefinite. Leaves all alternate.

GENUS III.—**DIGITALIS.** *Tournef.*

Calyx 5-partite. Corolla tubular or campanulate, ventricose on the under side, abruptly contracted at the base; limb very short, sub-erect, oblique, but scarcely bilabiate; the upper lip entire or notched, the lower one 3-lobed. Stamens 4, didynamous, included. Anthers 2-celled. Capsule conical, 2-celled, septicidally 2-valved, the upper valve also splitting loculicidally. Seeds very numerous, minute.

Herbs, rarely undershrubs, with alternate leaves and large purple, yellow, white, or lurid horizontal or drooping flowers in a simple raceme.

The name of this genus of plants comes from the Latin word *digitus*, a finger, from the resemblance of the flowers of the species to the fingers of gloves. It was so named by Fuchs, a German botanist, possibly from *digitabulum*, a sort of finger-glove or cap, used in gathering olives. It may be that the name *Fuchs' glove* was corrupted into Foxglove, the common name of the species; but it is more probable that it comes from Folks-glove, as mentioned under the *D. purpurea.*

SPECIES I.—DIGITALIS PURPUREA. *Linn.*

PLATE DCCCCLII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXXVIII.

Radical leaves oval-ovate, abruptly contracted into winged petioles, sub-obtuse; stem-leaves narrower and with shorter stalks, the uppermost ones sessile, attenuated at the base, acute; all irregularly crenate or crenate-dentate, rugose, puberulent above, pubescent and grey beneath. Rachis and pedicels tomentose, the latter thickened at the apex. Calyx-segments erect, oval-lanceolate, sub-obtuse or apiculate or abruptly acuminated, puberulent, ciliated. Corolla glabrous externally, tubular-bellshaped, ventricose beneath, contracted at the base; upper lip entire or nearly so, lower one with 3 short lobes, of which the middle is the largest; all ciliated with short woolly hairs. Capsule ovoid-conical, pubescent with jointed glandular hairs.

In woods, bushy places, banks, and pastures. Common in hilly districts, extending from Cornwall and Kent to Orkney; absent from the counties of Cambridge, and probably Hunts and Northampton; absent also from Shetland.

England, Scotland, Ireland. Biennial or Perennial.
Summer and Autumn.

Stem round, stout, 18 inches to 6 feet high or even more, erect, simple, or occasionally slightly branched, with the branches erect. Radical leaves very large, frequently a foot or more long (including the winged petioles); stem-leaves smaller, narrower, and with shorter stalks the higher they are placed on the stem, until at length the upper ones are quite sessile and narrowly lanceolate. Raceme very long, dense, secund. Bracts leaflike, generally longer than the pedicels. Peduncles solitary, 1-flowered, as long as, or slightly exceeding the calyx. Flowers 1¾ to 2½ inches long, purplish-crimson above, pale beneath, and speckled with purple dots, which are much less conspicuous on the outside than on the inside, where they are ocellated, with a white ring round them: occasionally the corolla is white. Calyx-segments divided to the base, the uppermost one shorter and narrower than the others. Capsule longer than the calyx, ⅝ inch long, splitting into an upper and lower valve, and the upper valve splitting down the middle. Seeds numerous, pale reddish-brown, alveolate-punctured. Plant greyish-green, the under side of the leaves more or less hoary-grey.

Foxglove.

French, *Digitale Rougeâtre.* German, *Rother Fingerhut.*

The origin of the common name of this plant has given rise to many conjectures and curious statements. In nearly all places where it occurs, it is known by some name, referring to its finger-like, glove-like, or thimble-like blossom, that

"Rears its pyramid of bells
Gloriously freckled, purpled and white."

Dr. Prior, whose authority is great in the origin of popular names, says: "Foxglove is a name so inappropriate to the plant, that many explanations of it have been attempted, by which it might appear to mean something different from the glove of a fox. Its Norwegian name, *Revbielde*, foxbell, is the only foreign one that alludes to that animal. We get no help or light on the subject from any other of its foreign synonyms. Its present Latin name, *Digitalis,* was given to it by Fuchs, with the remark, that up to that time, 1542, there was none for it in Greek or Latin. In France it is called *Gants de Notre Dame;* in Germany *Fingerhut.* It seems most probable that the name was, in the first place, *foxes' glew,* or music, in reference to the favourite instrument of an earlier time, a ring of bells hung on an arched support, the tintinnabulum, and thus answering to the Norwegian *Revbielde.*" We cannot quite agree with Dr. Prior, for it seems quite probable that the shape of the flowers may have suggested the idea of a glove, and that, associated with the name of the botanist Fuchs, who first gave it a botanical name, may have been easily corrupted into *Foxglove.* It happens, moreover, that the name *Folksglove* is a very ancient one, and exists in a list of plants as old as the time of Edward III. The "folks" of our ancestors were the "fairies," and nothing was more likely than that the pretty coloured bells of the plant would be designated "*Folksgloves,*" afterwards "Foxglove." In Wales it is still declared to be a favourite lurking-place of the fairies, who are said to occasion the snapping sound made when children, holding one end of the digitalis bell, suddenly strike the other on the hand to hear the clap of fairy thunder, with which the indignant fairy makes her escape from her injured retreat. In the South of Scotland it is called "bloody fingers," more northward "deadman's bells;" whilst in Wales it is known as "fairy-folks-fingers, or "lambs-tongue-leaves." Poets have not forgotten to honour the beauty of this stately plant in their rhymes, and the characteristic manner in which the blossoms fall off one by one, apparently in their full bloom and freshness, commencing at the lowest and gradually mounting to the highest, is mentioned by Wordsworth:—

"Through quaint obliquities I might pursue
These cravings; when the Foxglove one by one
Upwards through every stage of the tall stem
Had shed beside the public way its bells,
And stood of all dismantled, save the last,
Left at the tapering ladder's top that seem'd
To bend, as doth a slender blade of grass
Tipp'd with a rain-drop."

And again he writes—

"The Foxglove now in crimson tresses rich
Depends, whose freckled bells to insect tribes
Afford a canopy of velvet bliss."

Coleridge writes thus :—

"The Foxglove tall
Sheds its loose purple bells, or in the gust,
Or when it bends beneath the upspringing lark
Or mountain finch alighting."

The Foxglove is one of the poisonous plants of Great Britain : it was employed by the old herbalists for various purposes in medicine, most of them wholly without reference to those valuable properties which render it so useful a remedy in the hands of the modern physician. Gerarde recommends it to those "who have fallen from high places." Dodoen prescribed it boiled in wine as an expectorant, and for all maladies of the spleen or liver it was highly esteemed. Blanchard tells us that the country people of Somersetshire still administer it in fevers, for which "some confide very much in the flowers," and putting a "great many of them in May butter, they set them in the sun," while "others mingling them with lard, put it underground for forty days, and then apply them as an ointment" in cases of King's evil. Modern chemists inform us that all parts of the plant are poisonous, and exert an action both on the brain and alimentary canal. The leaves appear to produce the most powerful effect, and retain their noxious properties when dried. Dr. Taylor, in his work on Poisons, gives us several instances of poisoning by digitalis, either by intention or mistake. A few grains of the powdered leaves have been known to produce giddiness, languor, dimness of sight, and other nervous symptoms. A drachm has, however, been taken without causing death, but it produced the most violent vomiting. The most common effect of the poison on the system is the depression of the heart's action. In cases of accidental poisoning by Foxglove, the remedies are a free use of emetics and vegetable infusions containing tannin. The active principle of the digitalis is known to chemists as digitalia. The use of the plant in medicine was advocated by Dr. Withering, to whose exertions much of our knowledge of the properties of our native plants is due. In his time it was commonly used as a remedy in regular practice ; but it is a dangerous medicine, and should not be administered incautiously, its action being frequently cumulative, so that, after a number of small doses have been given with apparently little effect, the whole will often act suddenly upon the system, producing the most alarming symptoms, and even death. The uncertainty of the action of many of these vegetable poisons, according to the circumstances of the growth of the plant, the season in which it might have been gathered, &c., are grave objections to their use in medicine. We find, however, that the Digitalis is retained in the British Pharmacopœia, and that it is prescribed in the form of an infusion made from the dried leaf, from wild indigenous plants gathered when about two-thirds of the flowers are expended. Dr. Withering, with whom the Foxglove was a very favourite remedy, quotes some lines which describe its action :—

"The Foxglove's leaves with caution given,
Another proof of favouring Heaven
Will happily display ;
The rapid pulse it can abate,
The hectic flush can moderate,
And, blest by Him whose will is fate,
May give a lengthen'd day."

A domestic use of the handsome flower of the Digitalis was general throughout North

Wales at one time, and is now practised at Llanberis. The square stones of the floors are ornamented by being crossed at right angles with two broad black lines, which somewhat resemble mosaic-work. This effect is produced by strongly rubbing the stone with a handful of leaves of the Foxglove, when the juice dyes this black stain.

TRIBE IV.—ANTIRRHINEÆ.

Corolla tubular, bilabiate, usually saccate or spurred at the base on the outer side; upper lip covering the others in bud. Stamens 4, didynamous, rarely with a small scale, representing the fifth stamen. Leaves alternate, or the lower ones often verticillate or opposite.

GENUS IV.—**ANTIRRHINUM.** *Tournef.*

Calyx 5-partite. Corolla tubular, bilabiate and personate; tube saccate at the base on the outer side; limb with the upper lip erect, 2-lobed, the lower spreading, 3-lobed, with the middle lobe the smallest, and with a large hairy palate pressed against the upper lip and closing the mouth of the flower. Stamens 4, didynamous, included; anthers 2-celled. Capsule 2-celled, obliquely ovoid, with the upper cell opening by a single pore and the lower by 2, or globose and with each cell opening by a single pore. Seeds numerous, minute, not winged.

Herbs or undershrubs, with most of the leaves alternate, but the lower ones generally opposite. Flowers generally handsome, solitary and axillary, or disposed in racemes.

The name of this genus of plants is derived from two Greek words, *αντι* (*anti*), instead of, and *ριν* (*rin*), a snout; so called because the flower in some of the species is said to resemble the snout of a calf.

SPECIES I.—**ANTIRRHINUM MAJUS.** *Linn.*

PLATE DCCCCLIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXIX. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 3442.

Stems erect, much branched, shrubby towards the base; branches erect. Leaves mostly opposite, oblong-elliptical or oblong-strap-shaped, attenuated into short indistinct petioles; the upper ones narrower and nearly sessile; all entire and glabrous. Flowers racemose. Bracts ovate, acuminate, shorter than the pedicels. Pedicels erect, usually longer than the calyx, thickly clothed with gland-tipped hairs. Calyx-segments slightly unequal, oval or oval-orbicular, obtuse, thickly clothed with gland-tipped hairs. Corolla five to six times as long as the calyx. Capsule smooth, glandular-pubescent, twice as long as the calyx, convex on the upper side, gibbous at the base on the lower. Seeds muricated with anastomosing ridges.

On old walls and rocks, naturalized. Not unfrequent in the South of England. Completely naturalized at Catdown Quarries, near Plymouth, and on the chalky banks of the railway-cutting between Greenhithe and Northfleet, Kent.

[England, Scotland, Ireland.] Shrub, or perennial.
Summer and Autumn.

A soft-wooded shrub with much-branched stems 1 to 3 feet high, which are decumbent and glabrous at the base. Leaves opposite, or the upper ones alternate, generally with fascicles of leaves at the base, 1 to 3 inches long, varying much in breadth. Flowers in a close spikelike raceme at the extremity of the branches 1½ inch long, pale purplish-rose or nearly white in the perfectly naturalized state, but sometimes crimson, white and crimson or yellow when it has but lately escaped from cultivation; upper lip of the corolla with 2 obtuse oblique lobes with spreading margins; palate yellow, its point reaching to the division between the lobes of the upper lip. Capsule ½ inch long. Plant dull-green, glabrous below, the upper part of stem, pedicels, and calyx, with gland-tipped hairs.

Common Snapdragon.

French, *Muflier à Grandes Fleurs.* German, *Grosses Löwenmaul.*

This curious plant is well known by every village child, as well as in every garden, by the name of *bunny, rabbit's-mouth, bull-dogs,* &c. It is bitter and stimulant. Its common name well expresses its form, for when pressed open it looks like the mouth of some fabulous creature—possibly a dragon—*snapping* or biting. In olden time it was valued as a preservative against witchcraft, a reputation it still holds in some parts of the Continent. In Russia it is still cultivated for the sake of the oil yielded by its seeds, said to be little inferior to olive-oil. The leaves are sometimes used as cataplasms to tumours and ulcers. The flowers form perfect insect-traps, as the lips easily yield to a slight pressure from without; but when once within, the insect finds escape impossible without gnawing a hole at the side of its prison.

SPECIES II.—ANTIRRHINUM ORONTIUM. *Linn.*

PLATE DCCCCLIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXVIII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1723.

Annual. Stem erect, slightly branched; branches erect, or decumbent at the base. Leaves opposite or alternate, elliptical-strapshaped, attenuated at the base, but scarcely petiolate; the upper ones narrower; all entire, glabrous, and sometimes remotely ciliated. Flowers racemose. Bracts elliptical-stapshaped, resembling the upper leaves, much longer than the pedicels. Pedicels erect, much shorter than the calyx; usually thickly clothed with gland-tipped hairs. Calyx-segments strapshaped, acute, glabrous, ciliated with gland-tipped hairs. Corolla shorter than the calyx. Capsule granulated, glandular-pubescent, shorter than the calyx, convex on the upper side, gibbous at the base beneath. Seeds with a raised line on one face, and a deep irregular pit-like furrow on the other, and a ridge running all round between the two faces.

In cornfields in sandy soil. Rather rare or local. In most of the counties in the South of England, as far North as Norfolk, Yorkshire, and Anglesea.

England, Ireland. Annual. Late Summer and Autumn.

Stem 3 inches to 2 feet high, generally branched from near the base, the branches simple. Leaves 1 to 2 inches long, tapering at the base and apex; those in the axils of which the flowers are produced not distinguishable from the others. Calyx-segments variable in length, sometimes more than 1 inch long, resembling the leaves, but narrower. Corolla $\frac{1}{2}$ to $\frac{3}{4}$ inch long, pale-rose streaked with darker; upper lip deeply notched, with the lobes ascending-reflexed. Capsule $\frac{1}{2}$ inch long. Seeds numerous. Plant dull-green, glabrous, commonly with the upper part of the stem, pedicels, margins of the upper leaves, and sepals clothed with gland-tipped hairs, rarely wholly glabrous.

Corn Snapdragon.

French, *Muflier Rubicond.* German, *Feld Löwenmaul.*

GENUS V.—LINARIA. *Tournef.*

Calyx 5-partite. Corolla tubular, bilabiate and personate; tube spurred at the base on the outer side; limb with the upper lip erect, 2-lobed, the lower spreading 3-lobed, with a large hairy palate pressed against the upper lip and closing the mouth of the corolla, or a smaller one not completely closing the mouth of the corolla. Stamens 4, didynamous, included; anthers 2-celled. Capsule ovoid or globose, 2-celled, with the cells nearly equal, each cell opening by a pore or by several teeth. Seeds numerous, small or rather large in proportion to the size of the capsule, winged or wingless.

Herbs, with the habit of Antirrhinum, but with the flowers smaller, sometimes very small, and always more or less spurred at the base. In many of the species, flowers occur with 2, 3, or more spurs ; when with 5 spurs and a regular tubular-conical corolla, the form is termed Peloria.

The name of this genus of plants comes from the word *linum*, flax, to which the leaves of some of the species bear resemblance.

SECTION I.—CYMBALARIA. *Chav.*

Perennial. Stems diffusely branched, with the branches procumbent, rooting at the base. Leaves long-stalked, palmately nerved, generally lobed. Flowers axillary, distant. Corolla with the palate prominent, closing the throat, not extending beyond the upper lip. Capsule opening by 2 valves, each of which splits into 3. Seeds oblong, wingless, rugose.

SPECIES I.—**LINARIA CYMBALARIA.** *Mill.*

PLATE DCCCCLV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXX. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 594.
Antirrhinum Cymbalaria, *Linn.* *Sm.* Eng. Bot. No. 502.

Perennial. Stems procumbent, diffusely branched ; branches elongated, rooting at the base. Leaves mostly alternate, with petioles much longer than the lamina, roundish-reniform, cordate, 5- to 7-lobed ; lobes deltoid-ovoid, obtuse or mucronate. Pedicels elongated, often as long as or exceeding the leaves. Calyx-segments strapshaped - lanceolate, acute. Corolla three or four four times as long as the calyx ; spur much shorter than the corolla, blunt, making an obtuse angle with the under side of the corolla. Capsule globular, longer than the calyx, opening by two 3-valved holes. Seeds ovoid, with obtuse prominent irregularly-parallel waved ridges. Plant glabrous.

Perfectly naturalized on old walls and sometimes on rocks over the whole of England and the southern half of Scotland.

[England, Scotland, Ireland.] Perennial. Summer and Autumn.

Stems numerous, 3 inches to 2 feet long, procumbent wher growing on the top, but pendent when on the side of a wall, purplish, succulent. Leaves $\frac{1}{2}$ to 1 inch across, on petioles exceeding their own length, lobed so as to resemble miniature ivy-leaves, somewhat fleshy. Peduncles solitary, 1-flowered, very slender.

Calyx tinged with purple. Corolla $\frac{3}{8}$ inch long, of which the spur is about one-fourth, purplish-blue, purple above; upper lip ascending, recurved, 2-partite; palate prominent, generally with 2 yellow spots. Stamens 4, with the rudiment of a fifth between the inner pair. Fruit about the size of a coriander-seed. Plant dark-green, glabrous.

Ivy-leaved Toadflax.

French, *Linaire Cymbalaire.* German, *Ephenblättriger Frauenflachs.*

This pretty little trailing plant is abundant on old walls in many parts of the kingdom, and so abundant are its pale lilac blossoms, that it is often called "Mother of thousands." In Southern Europe it is eaten as a salad, and is a good antiscorbutic, but its taste is similar to that of cress. According to Hamilton, it has been successfully administered in diabetes in Hindostan, being first mixed with sugar. The flowers yield a yellow but not very permanent dye.

SECTION II.—ELATINOIDES. *Chav.*

Annual; rarely perennial. Diffusely branched, with the lateral branches generally procumbent, not creeping. Leaves mostly shortly stalked, pinnately nerved, often hastate, dentate or entire. Flowers axillary, distant. Corolla with the palate prominent, closing the throat and extending much beyond the upper lip. Capsule opening by 2 pores, each formed by the fall of an operculum. Seeds roundish or ovate-truncate, wingless, foveolate or tuberculate.

SPECIES II.—**LINARIA ELATINE.** *Mill.*

PLATE DCCCCLVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXX. Fig. 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 595.
Antirrhinum Elatine, *Linn.* *Sm.* Eng. Bot. No. 692.

Annual. Stems very slender, branched from the base; branches elongated, procumbent, not rooting. Lowest leaves opposite, oval, with a tooth on each side near the base; the rest alternate, with petioles shorter than the lamina, ovate, triangular-hastate, shortly acuminated or acute, entire. Pedicels spreading-divaricate, elongated, exceeding the leaves, glabrous except at the apex. Calyx-segments lanceolate, acuminated or acute. Corolla scarcely twice as long as the calyx; spur nearly as long as the corolla, acute, straight or very slightly curved, making an angle exceeding a right angle with the under side of the corolla. Capsule subglobular, shorter than the calyx, opening by 2 pores, each formed by the fall of an operculum. Seeds ovoid, with a network of strongly elevated ridges. Plant (with the exception of the peduncles up to the bend at their apex) clothed with short bristly-woolly hairs, intermixed on the stem with shorter gland-tipped ones.

In cornfields and waste places, on chalky and sandy soils, more rarely on wet ground. Common in the South of England; more rare in the North, extending to Yorkshire and Lancashire; on the ballast-hills at the mouth of the Tyne, but there introduced.

England, Ireland. Annual. Summer and Autumn.

Central stem at first erect, afterwards prostrate; branches very slender, prostrate, spreading in all directions, 6 inches to 2 feet or more long. Longest leaves not above 1 inch long; earliest leaves opposite; the rest alternate, decreasing in size towards the apex of the branches, truncate and hastate or sagittate-hastate at the base. Peduncles divaricate, very slender, stiff, bent round at the apex. Flowers $\frac{4}{5}$ inch long, of which the spur is nearly half, pale yellow, with the inner face of the upper lip violet, the lower lip slightly touched with violet towards the base; spur nearly straight, forming an obtuse angle with the lower side of the corolla, directed outwards from the bending at the apex of the peduncle. Capsule about the size of a sweet-pea seed. Seeds irregularly honeycombed. Plant green, with the leaves slightly hairy, ciliated with longer hairs; stem with long white jointed hairs and shorter gland-tipped ones; peduncles glabrous except above the bend; sepals bristly hairy; corolla with a few hairs.

Sharp-leaved Fluellin.

French, *Linaire Elatine.* German, *Spiessblättriger Frauenflachs.*

SPECIES III.—**LINARIA SPURIA.** *Mill.*

PLATE DCCCLVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXX. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 595.
Antirrhinum spurium, *Sm.* Eng. Bot. No. 691.

Annual. Stems slender, branched from the base; branches elongated, procumbent, not rooting. Lower leaves and most of those on the main stem, up to those which have flowers in the axils, opposite or nearly so; the rest alternate; all very shortly stalked, oval, roundish-oval, or ovate-oval, not hastate or sagittate at the base, obtuse or sub-obtuse and apiculate, entire or remotely serrate-dentate. Pedicels ascending-spreading, elongated, the upper ones exceeding the leaves, clothed throughout with stiff woolly hairs. Calyx-segments ovate, acute. Corolla twice as long as the calyx; spur nearly as long as the corolla, acute, curved, making a right angle with the under side of the corolla. Capsule sub-globular, shorter than the calyx, opening by 2 pores, each formed by the fall of an operculum. Seeds ovoid, with close irregular network of strongly-elevated ridges. Plant clothed with short rather bristly-woolly hairs, intermingled throughout with shorter gland-tipped ones.

In cornfields, on chalky, and more rarely sandy ground. Rather common in the South and East of England, extending North to the counties of Lincoln, Nottingham, and York, but not lately seen in the latter county.

England. Annual. Late Summer and Autumn.

Very like L. Elatine, but a stouter plant, with the primary stem more erect, and the branches shorter; the leaves larger, rounder, the largest 1 to 2 inches long, and a greater number of them opposite, none of them sagittate or hastate at the base, though sometimes cordate, on shorter stalks. Pedicels stouter, less spreading, hairy throughout. Calyx-segments broader, considerably enlarged after flowering. Corolla rather more than half an inch long, pale-yellow, the inside of the upper lip purplish-maroon, the lower lip darker yellow; palate bright-yellow; the spur much more incurved than in L. Elatine, and making nearly a right angle with the tube of the corolla. Capsule about the size of a peppercorn. Seeds similar to those of L. Elatine. In both these species the abortive stamen is represented by a small scale.

Round-leaved Fluellin.

French, *Linaire Velvote.* German, *Eiblättriger Frauenflachs.*

The derivation of the common name of this species of Toadflax, as given by Prior, is curious. He says, in Dutch it was originally *fluweelen,* downy, velvety; hence the French *velvote.* It is from this, and not, as Parkinson states, a Welsh word.

SECTION III.—LINARIASTRUM. *Chav.*

Annual or perennial. Stems simple or branched, erect or decumbent, with the branches not rooting. Leaves sessile, pinnately nerved and entire; the lower ones (or rarely all) opposite or verticillate. Flowers in terminal racemes or spikes. Corolla with the palate prominent, closing the throat, and not extending much beyond the upper lip. Capsule opening by 4 to 10 teeth at the apex. Seeds angular and wingless, or denticular and winged.

SPECIES IV.—LINARIA SUPINA. *Desf.*

PLATE DCCCCLVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXXI. Fig. 5.
Billot, Fl. Gall. et Germ. Exsicc. No. 424.
Antirrhinum supinum, *Linn.* Sp. Plant. p. 856.

Annual. Stems numerous, all decumbent, erect at the apex, usually simple. Leaves sessile, in whorls of 3 to 5; the upper ones usually alternate; all linear-strapshaped, entire. Flowers few, in a dense raceme, which lengthens after flowering. Pedicels shorter than the calyx. Calyx-segments strapshaped, sub-obtuse, clothed with gland-tipped hairs. Corolla six times as long as the calyx; spur nearly as long as the corolla, acute, very slightly curved, in a line with the under side of the corolla. Capsule sub-globular, half as long again as the calyx, each of the two valves splitting into 3 segments. Seeds shining, reniform, surrounded by a broad concavo-convex striated wing. Plant glaucous, glabrous except the upper part of the stem, rachis, peduncles, and calyx-segments, which are clothed with gland-tipped hairs.

On sandy and stony waste places; probably native at Hayle and St. Blazey's Bay, Cornwall; introduced with ballast, but completely naturalized at Catdown Quarries, Plymouth, Devon. It has also occurred on ballast at Poole, Dorset, and on the ballast-hills at the mouth of the Tyne, Northumberland.

England. Annual. Summer and Autumn.

Flowering-stems 3 to 9 inches long, spreading in all directions; barren stems shorter. Leaves $\frac{1}{2}$ to 1 inch long, somewhat fleshy, crowded. Flowers 3 to 8 in a raceme, which is extremely short while in flower. Corolla, including the spur, about 1 inch long, pale-yellow, with the palate orange. Capsule about $\frac{1}{4}$ inch long. Seeds shining black, about $\frac{1}{12}$ inch in diameter, with the wing orbicular, marked with radiating striæ.

The plate and description are taken from fresh Plymouth specimens sent me by Mr. Archer Briggs.

Decumbent Toadflax.

French, *Linaire Couchée.*

SPECIES V.—LINARIA PELISSERIANA. *Mill.*

PLATE DCCCCLIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXXIII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 280.
Antirrhinum Pelisserianum, *Linn.* Sp. Pl. p. 855.

Annual. Stems few, the barren ones very short and decumbent, the flowering ones erect. Leaves of the barren shoots opposite or in whorls of three, oval or elliptical, attenuated into indistinct petioles; those on the flowering-stem scattered, or sometimes the lower in whorls of three, sessile, strapshaped, entire. Flowers few, in a rather dense raceme, which lengthens after flowering. Pedicels about as long as the calyx. Calyx-segments linear-subulate, glabrous. Corolla scarcely three times as long as the calyx; spur nearly as long as the corolla, acute, straight, in a line with the under side of the corolla. Capsule sub-globular, rather shorter than the calyx, each of the 2 valves splitting into 3 segments. Seeds shining, sub-orbicular, surrounded by a broad plano-convex fimbriated wing. Plant slightly glaucous, wholly glabrous.

On the slope of a hill facing the south, amongst Ulex Europæus, by the side of a road leading from a water-mill, near St. Ouen's Pond to the junction of the road up to St. Peter's Barracks, Jersey, where it was discovered by Professor Babington in 1838, and was again gathered in the same station by Mr. T. B. Flower in 1865.

Channel Islands. Annual. Summer.

Flowering-stem slender, erect, 6 to 18 inches high; barren stems very short, with the leaves $\frac{1}{4}$ to $\frac{1}{2}$ inch long, those on the flowering-stem $\frac{3}{4}$ to $1\frac{1}{4}$ inch. Flowers 3 to 6, at first almost in a head, then separating into a raceme. Corolla about $\frac{1}{2}$ inch long, purple with darker veins, with the palate paler. Capsule $\frac{1}{8}$ inch long, sub-didymous. Seeds black, with the border cut into fine hair-like segments.

Jersey Toadflax.

French, *Linaire de la Pélissier.*

SPECIES VI.—LINARIA PURPUREA. *Mill.*

PLATE DCCCCLX.

Antirrhinum purpureum, *Linn.* Sp. Pl. p. 853.

Biennial or perennial, with the rootstock not creeping. Stems usually numerous from the crown of the rootstock; all erect, simple or branched. Leaves scattered, the lower ones often in whorls of 3 to 6; all sessile, strapshaped, entire. Flowers very numerous, in a dense raceme, which elongates much after flowering. Pedicels about as long as the calyx. Calyx-segments strapshaped-subulate, glabrous. Corolla about four times as long as the calyx; spur nearly as long as the corolla, acute, curved, making an obtuse angle with the under side of the corolla. Capsule subglobular, half as long again as the calyx, each valve splitting into 3. Seeds oblong, attenuated towards the base, triquetrous, without a wing, covered with a network of strongly elevated lines. Plant glaucous and glabrous.

On old walls. Naturalized in many places in England and the South of Scotland.

[England, Scotland.] Biennial or Perennial. Summer and Autumn.

Rootstock almost woody but not creeping, short-lived but generally flowering more than once. Stems stout, 18 inches to 4 feet high. Leaves 1 to 2 inches long, generally scattered, except at the base, where they are more or less distinctly whorled, the number in the whorl varying greatly. Corolla ⅜ inch long without the spur, deep bluish-purple, the tube striped with darker purple. Capsule sub-didymous, about the size of a white-mustard seed. Seeds minute, black, shaped like one of the segments of an orange.

Purple Toadflax.

French, *Linaire Purpurine.*

SPECIES VII.—LINARIA REPENS. *Mill.*

PLATE DCCCCLXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXXIV. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 58.
Linaria striata, *D.C.* *Benth.* in *D. C.* Prod. p. 278. *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 601. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 579. *Reich. fil.* l. c.
Antirrhinum repens, *Linn.* *Sm.* Eng. Bot. No. 1253.
A. repens et A. Monspessulanum, *Linn.* Sp. Pl. p. 584.

Perennial. Rootstock creeping. Stems several or numerous from the crown of the rootstock, all erect, usually branched. Leaves scattered, the lower ones in whorls of 4 to 6; all sessile, strapshaped or elliptical-strapshaped, entire. Flowers rather numerous, in a rather dense raceme, which elongates much after flowering. Pedicels longer than the calyx. Calyx-segments strapshaped-triangular, glabrous. Corolla three or four times as long as the calyx; spur three or four times shorter than the corolla, blunt, straight, making a very obtuse angle with the under side of the corolla. Capsule sub-globular, half as long again as the calyx, each valve again splitting into 3. Seeds oblong, attenuated towards the base, triquetrous, without a wing, covered with a network of strongly elevated lines. Plant glaucous and glabrous.

On banks, waste places, and by roadsides. Rather rare. In the counties of Cornwall, Devon, Hants, Sussex, Berks, Beds, Oxon, Gloucester, and Carmarthen. Kerry, Cork, and Carlow, Ireland. In Scotland, it occurs in Ayrshire and Forfarshire, but no doubt introduced. It was formerly abundant on the *débris* of Salisbury Craigs, Edinburgh, but evidently not native there.

England, [Scotland,] Ireland. Perennial. Summer
and Autumn.

Rootstock creeping and branched. Stem rather wiry, 1 to 3 feet high, often decumbent at the base. Leaves very numerous, ½ to 1½ inch long, variable in breadth, often in verticels of 4 or 5 or even 6 at the base of the stem and on the barren shoots. Flowering-stem often branched, so that the inflorescence becomes a lax panicle. Flowers ⅜ inch long without the spur, white tinged with lilac, striped with purplish-blue, the stripes sometimes anastomosing; palate usually with a yellow spot in the middle. Capsule about the size of a white-mustard seed, sub-didymous. Seeds minute, shaped like those of L. purpurea, but more truncate at the apex.

This species is sometimes confounded with L. purpurea, but it is a smaller and more slender plant, with a distinctly creeping rootstock; the calyx-segments are broader, and the flowers are fewer, smaller, and nearly white striped with lilac, and the spur acute, not half the length of that of L. purpurea and not curved.

Striped Toadflax.

French, *Linaire à Racine rampante.*

SPECIES VIII.—LINARIA VULGARIS. *Mill.*

PLATES DCCCCLXII. DCCCCLXIII. DCCCCLXIV.

Antirrhinum Linaria, *Linn.* *Sm.* Eng. Bot. Nos. 658, 260.

Perennial. Rootstock creeping. Stems several or solitary from the nodes of the rootstock; all erect, simple or branched. Leaves all scattered in irregular whorls of 3 towards the base; all sessile, strapshaped, elliptical-strapshaped, or narrowly-elliptical, entire. Flowers numerous, in a dense raceme, which elongates slightly after flowering. Pedicels about as long as the calyx. Calyx-segments ovate-lanceolate, acute, glabrous. Corolla five or six times as long as the calyx; spur as long as the corolla, acute, nearly straight, in a line with the under side of the corolla. Capsule globular-ovoid, three times as long as the calyx, each valve splitting into 3. Seeds sub-orbicular, tuberculate, surrounded by a broad concavo-convex smooth wing. Plant glaucous and glabrous, except the rachis and pedicels, which are almost always clothed with short gland-tipped hairs.

Var. α, *genuina.*

PLATES DCCCCLXII. DCCCCLXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXXV.
Billot, Fl. Gall. et Germ. Exsicc. No. 425.

Leaves strapshaped, or the lower ones elliptical-strapshaped, indistinctly 3-nerved. Rachis and pedicels generally clothed with gland-tipped hairs. Calyx-segments ovate-lanceolate.

Var. β, *latifolia.* Bab.

PLATE DCCCCLXIV.

L. speciosa, *Ten.?* Fl. Neap. Tab. CLIX. Fig. 1. *Bromf.* Phyt. Ser. I. Vol. III. p. 627; and Fl. Vect. p. 347.

Leaves strapshaped-elliptical, or the lower ones narrowly-elliptical, distinctly 3-nerved. Rachis and pedicels glabrous. Calyx-segments lanceolate. Flowers considerably larger than var. α, and with the spur slightly curved, the bracts generally larger and more like the leaves.

Hedges, borders of fields, and waste ground. Common, and generally distributed in England and the South of Scotland. Rare to the North of the Forth and Clyde, but occurring as far North as Aberdeen, Moray, and Dumbarton. Var. β was found by the late Dr. Bromfield on the wooded shore a little to the west of Ryde, towards Binstead, Isle of Wight, and by myself in the great chalk-pit at Northfleet, Kent.

England, Scotland, Ireland. Perennial. Late Summer and Autumn.

Stem 1 to 2 feet high, almost woody below. Leaves very numerous, 1 to $2\frac{1}{2}$ inches long. Flowers numerous, crowded, nearly $\frac{3}{4}$ inch long without the spur, pale-yellow, with the palate orange, sometimes white or nearly white. Seeds $\frac{1}{12}$ inch in diameter, black.

A remarkable state or monstrosity named Peloria (Plate DCCCCLXXII.), occasionally occurs with a regular corolla, contracted at the throat, and with a spreading regular 5-lobed limb, within which there is a funnel-shaped opening, and with 5 spurs at the base ; more often, however, intermediate states with only 3 spurs are to be found. The same thing is common in L. purpurea, and not unfrequent in L. Elatine and L. spuria.

Var. β is a more luxuriant plant ; the Northfleet specimens are 3 or 4 feet high, the largest leaves about 3 inches long and nearly 1 inch broad, the bracts larger and foliaceous, the pedicels longer, the flowers nearly 1 inch long, the capsules always abortive ; but in the Isle of Wight plant Dr. Bromfield says they are considerably smaller than those of the common form ; the inflorescence bears a striking resemblance to Reichenbach's figure of L. Dalmatica, Miller (a plant with which I am otherwise quite unacquainted) ; but that species has the seeds like those of L. repens and L. purpurea, so that it is quite distinct from L. vulgaris. I have not seen specimens of L. speciosa (Ten.), which Mr. Bentham refers to L. vulgaris. According to Mr. H. C. Watson, the Isle of Wight variety latifolia, under cultivation, reverts to the ordinary form of L. vulgaris, so that it is a state rather than a variety.

Yellow Toadflax.

French, *Linaire Commune.* German, *Gemeiner Frauenflachs.*

All country children know this little plant as "Butter and eggs," from the yellow and orange colour of the flowers. It has some powerful qualities as a purgative and diuretic, and an infusion of the leaves was at one time in great reputation among herb doctors in dropsy ; but, according to Haller and other authorities, it is not to be recommended in that complaint. As a lotion in skin diseases, an infusion of the leaves has been highly esteemed. Gerarde tells us that "a decoction of Todeflax taketh away the yellownesse and deformitie of the skinne, being washed and bathed therewith."

HYBRID.

LINARIA VULGARI-REPENS.

Plate DCCCCLXV.

L. Sepium, *Allm.* in Proceedings of Royal Irish Academy.

Intermediate between L. vulgaris and L. repens, differing from L. repens in the flowers being larger, often more or less suffused with yellow, especially on the under lip, and the spur longer and more acute ; the seeds (which I have not seen) are described as having a border or 3 prominent smooth wings. From L. vulgaris it differs in the much smaller flowers more or less striated with lilac; the spur shorter and scarcely so acute; the sepals narrower and more strapshaped, and the pedicels longer.

England, Ireland. Perennial. Late Summer
and Autumn.

In the form described as L. Sepium by Professor Allman, which was found at Bandon, near Cork, the flowers, exclusive of the spur, are rather more than ½ inch long, the spur about ⅜ inch; the flowers with purple lines, and under lip pale-yellow, the palate orange. This is the only form I have seen in a recent state, the plant having been sent me by Dr. D. Moore.

In the form found at Bodmin, in Cornwall, by Mr. H. C. Watson, the flowers resemble those of L. vulgaris in form, but are much smaller, and white striped with yellow.

A third form, also found by Mr. Watson, at Shirley, Southampton. In this the flowers resemble those of L. repens, but are suffused with yellow, and larger.

Some of these forms have likewise been found by Dr. Bromfield, near Hasler Hospital, on the right-hand side of the road coming from Gosport, and in the hedge by the road-side, within a mile of West Cowes, Isle of Wight, on the way to Newport, and in a lane leading from this station towards a windmill.

Hybrid between Yellow and Striped Toadflax.

SECTION IV.—CHŒNORRHINUM. *D. C.*

Annual or perennial. Stems branched, with the branches not rooting. Leaves oposite or alternate, entire. Flowers axillary, distant, or in a lax terminal raceme. Corolla with the palate depressed, not closing the throat. Capsule opening by 2 3-valved pores, or by 2 pores formed by the fall of an operculum. Seeds oblong-ovoid, truncate, sulcate.

SPECIES IX.—LINARIA MINOR. *Desf.*

PLATE DCCCCLXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCLXXXII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 57.
Antirrhinum minus, *Linn.* *Sm.* Eng. Bot. No. 2014.

Annual. Stem erect, branched throughout. Leaves all alternate, or a few of the lowest opposite, oblanceolate, elliptical or strapshaped, entire. Flowers numerous, solitary and axillary, arranged in racemes on the stem and branches. Pedicels about as long as the bracts, and three or four times as long as the calyx.

Calyx-segments elliptical-strapshaped, obtuse, clothed with gland-tipped hairs. Corolla slightly exceeding the calyx ; spur shorter than the corolla, blunt, straight, making an obtuse angle with the lower side of the corolla. Capsule ovoid-globose, gibbous on the under side at the base, opening at the apex by 2 semicircular pores, which are split at margin into several unequal teeth. Seeds oblong-obovate, with longitudinal acute slightly anastomosing ridges. Plant dull-green, clothed with gland-tipped hairs, especially on the stem, peduncles, and sepals.

In cornfields, especially in chalky and sandy districts. Not uncommon in England, at least in the South; rare in Scotland, where it only occurs in the counties of Berwick, Roxburgh, and Lanark ; also said to be naturalized in Kinross-shire ; Cork, Carlow, and near Dublin, Ireland.*

England, Scotland, Ireland. Annual. Summer and Autumn.

Stem rather wiry, 3 to 18 inches high, often very much branched, with the branches ascending. Leaves ½ to 1 inch long, narrowed at the base, the lower ones indistinctly stalked, those in the axils of which the flowers are produced not differing from the others. Flowers ¼ inch long, glandular-hairy, pale reddish-purple, with the lower lip yellowish-white. Capsule oblique, somewhat like that of Antirrhinum. Seeds similar to those of L. Cymbalaria.

Least Toadflax.

French, *Linaire Naine.* German, *Kleiner Frauenflachs.*

Tribe V.—GRATIOLEÆ.

Corolla tubular, bilabiate, not saccate or spurred at the base; upper lip generally, but not always, covering the lower in æstivation. Stamens 4, didynamous. Inflorescence simple, indefinite. Leaves, or at least the lower ones, opposite.

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* The publication of Dr. D. Moore and Mr. A. G. More's important work, "Contributions towards a Cybele Hibernica," enables me for the future to give the general distribution of species in Ireland.

GENUS VI.—MIMULUS. *Linn.*

Calyx tubular, 5-angled, 5-toothed. Corolla tubular, bilabiate and ringent; the upper lip erect, 2-lobed, the lower one sub-erect or spreading, 3-lobed. Stamens 4, didynamous; anthers 2-celled, the cells at length confluent. Stigma with 2 flat oblong irritable lobes, closing when touched. Capsule ovoid or fusiform, 2-valved, opening loculicidally. Seeds numerous, minute, not winged.

Herbs, with opposite leaves, and generally showy flowers, on solitary axillary peduncles arranged in a raceme.

The name of this genus of plants appears to have come from the Latin word *mimo*, I mimic; hence Monkey-flower.

SPECIES I.—MIMULUS LUTEUS. *Linn.*

PLATE DCCCCLXVII.

Billot, Fl. Gall. et Germ. Exsicc. No. 274.

Barren shoots prostrate, creeping. Flowering-stems erect. Lower leaves broadly obovate-obtuse, spathulate, or frequently sub-lyrate; upper leaves of the flowering-stem subsessile, roundish or broadly oval, obtuse or somewhat cuspidate; all 5- to 9-nerved, repand or denticulate, or more rarely dentate. Flowers axillary, arranged in a terminal raceme. Peduncles longer than the calyx. Calyx 5-toothed, the uppermost tooth longer than the others, all of them ovate. Corolla three times as long as the calyx, lower lip the longest, with 3 flattish sub-erect lobes. Calyx inflated in fruit. Capsule oval-ovoid, laterally compressed. Plant glabrous or more or less glandular-puberulent, more rarely with the stem-veins of the leaves, peduncles, and calyx pubescent, with gland-tipped hairs.

By the sides of streams and on wet banks; in many places, particularly in Scotland, naturalized from Western North America.

[England, Scotland, Ireland.] Perennial. Summer
and Autumn.

Barren shoots extensively creeping. Flowering-stems erect, 6 to 18 inches high. Leaves variable in breadth, ¾ to 2 inches long. Peduncles longer than the leaves from the axils of which they spring. Corolla 1½ to 1¾ inch long, bright-yellow, the throat and under side of the tube on the lower side sprinkled with red dots within; the limb without red blotches. Fruiting calyx ¾ inch long. Plant yellowish-green, somewhat shining, usually glabrous, but varying very much in this respect.

Yellow Monkey-flower.

German, *Gauklerblume.*

TRIBE VI.—SIBTHORPEÆ.

Corolla bell-shaped or sub-rotate; under lip of the corolla covering the upper in bud. Stamens 4, rarely 5 to 8. Inflorescence axillary. Leaves alternate or all radical.

GENUS VII.—**LIMOSELLA.** *Linn.*

Calyx 5-toothed. Corolla widely bell-shaped; tube short; limb 5-cleft, with the divisions flat and nearly equal. Stamens 4, nearly equal, sub-included; anthers with the cells at length confluent. Stigma clavate. Capsule sub-globular, 1-celled above, 2-celled at the base, 2-valved, opening loculicidally; valves entire. Seeds very minute.

Small annuals, growing in mud, with leaves in radical tufts or from the nodes of the stolon-like branches. Flowers very minute, on 1-flowered peduncles, from the centre of the tuft of leaves, white or purplish

The name of this genus of plants is a diminutive of *limus*, mud, in which it delights to grow.

SPECIES I.—**LIMOSELLA AQUATICA.** *Linn.*

PLATE DCCCCLXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXII.
Billot, Fl. Gall. et Germ. Exsicc. No. 1285.

Leaves on long stalks, elliptical, entire. Peduncles axillary, shorter than the petioles. Segments of the corolla oblong, obtuse, slightly exceeding the calyx.

On the borders of ponds, and places where water has lain in winter. Rare; but perhaps frequently overlooked on account of of its small size. Thinly spread over the English counties, but known to occur only in two Scotch localities, viz., a small pool at the south-east corner of Guillan Links, Haddington, and near St. Cyrus, Kincardineshire; reported also from Forfarshire.

England, Scotland. Perennial. Late Summer and Autumn.

A small plant, producing a tuft of radical leaves, and generally sending out a few branches, which root at the end and produce a smaller tuft of leaves at this point; in other respects similar to the primary tuft; in very luxuriant examples similar stolons are thrown out from these secondary tufts. Petioles $\frac{1}{4}$ inch to 2 inches long, much longer than the lamina, which varies in breadth, being sometimes scarcely broader than the petiole, at other times nearly $\frac{1}{4}$ inch across. Peduncles numerous, $\frac{1}{8}$ to 1 inch long, slender, without bracts, recurved in fruit. Calyx cup-shaped, 5-toothed. Corolla white or pale-rose, nearly regular. Capsule sub-globular, half as long again as the calyx, scarcely as large as a hempseed. Plant green, glabrous.

Mudwort.

French, *Limoselle Aquatique.* German, *Gemeiner Schlammling.*

GENUS VIII.—SIBTHORPIA. *Linn.*

Calyx 4- to 8-cleft. Corolla subrotate, nearly regular; limb with as many segments as there are divisions in the calyx, or 1 more. Stamens as many as the divisions of the calyx; anthers 2-celled. Stigma capitate, entire. Capsule membranous, laterally compressed, 2-celled, opening loculicidally by 2 valves. Seeds numerous, very minute, not winged.

Smalls herbs, with the stems often rooting at the nodes. Leaves alternate or fasciculate, stalked, roundish-reniform. Flowers very minute, yellow or reddish, on axillary peduncles.

This genus of plants was named after Professor John Sibthorp, the famous originator of the Flora Græca, and also the author of a Flora Oxoniensis. He was Professor of Botany at Oxford.

SPECIES I.—SIBTHORPIA EUROPÆA. *Linn.*

PLATE DCCCCLXIX.

Stems threadlike, prostrate. Leaves on long petioles, roundish-reniform, cordate, crenately 5- to 9-lobed, with the lobes truncate. Pedicels much shorter than the petioles. Calyx and corolla 5-cleft. Capsule of 2 oval lobes with a notch between them. Plant sparingly pubescent, with jointed hairs.

In damp shady places. Rare. Cornwall, Devon, Somerset, Sussex; near the rocking-stone Pont-y-Prid, Glamorganshire (Miss Thomas), and in a wood between Houllan Bridge and Altey Cwan, Carmarthenshire, found by the Rev. H. Ellacombe. Not uncommon in the Channel Islands.

England, Ireland. Perennial. Summer and Autumn.

A delicate plant, with threadlike stems rooting at the nodes, from which are produced leaves $\frac{1}{4}$ to 1 inch across, on petioles from $\frac{1}{4}$ to 3 inches long. Peduncles generally under $\frac{1}{4}$ inch. Calyx-segments lanceolate. Corolla scarcely longer than the calyx, with 5 lobes, two of them smaller and less reflexed than the other three, yellowish with a dull-red transverse band, scarcely perceptible in the 2 smaller segments. Capsule sub-didymous. Plant yellowish-green, with the stems, peduncles, pedicels, sepals, and veins of the leaves, with rather long jointed white hairs.

I am indebted to Mr. Charles Bailey for fresh specimens from Cornwall.

Cornish Moneywort.

French, *Sibthorpie d'Europe.*

TRIBE VII.—VERONICEÆ.

Corolla rotate, slightly irregular; under lip of the corolla covering the upper in the bud. Stamens 2. Inflorescence simple, indefinite. Leaves (or at least the lower ones) opposite.

GENUS IX.—VERONICA. *Tournef.*

Calyx 4- (rarely 5- or 3-) partite. Corolla rotate or subrotate-funnelshaped or salvershaped; tube very short or cylindrical; limb spreading or slightly concave, 4-cleft, rarely 5-cleft, with the lateral segments generally narrower than the upper one, and the lowest one narrowest of all. Stamens 2, exserted, inserted in the tube of the corolla, opposite the lateral segments of the corolla; anthers 2-celled, not awned. Stigma sub-capitate, entire. Capsule more or less compressed, 2-celled, generally obcordate or notched at the apex, furrowed on each face, loculicidally 2-valved, or these 2 valves again splitting septicidally. Seeds commonly numerous, rarely only 2 in each cell.

Plants of various habit, with the lower (or all) leaves opposite. Flowers rather small, blue, white, or pink, in terminal or axillary racemes.

The name of this genus of plants is said to have been given to it in honour of the Romish saint of that name. Among other conjectures as to the origin of the name, is one that supposes it to be compounded of the Greek words φερω (*phero*), I bring, and νικη (*nike*), victory, alluding to its supposed efficacy in subduing diseases.

SECTION I.—ALSINOIDES. *Koch.*

Annuals. Flowers in terminal racemes. Pedicels spreading-recurved or reflexed in fruit, solitary in the axils of leaves or bracts undistinguishable from the leaves, except by being alternate. Calyx 4-partite. Tube of corolla shorter than wide. Seeds convex on the back, hollowed out beneath.

SPECIES I.—VERONICA HEDERIFOLIA. *Linn.*

PLATE DCCCCLXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXCVIII. Figs. 3, 4, 5.
Billot, Fl. Gall. et Germ. Exsicc. No. 429.

Stem weak, much branched from the base; branches procumbent or ascending at the apex. Leaves all stalked, reniform or roundish reniform, cordate or abrupt at the base, 5- to 7-lobed, with the lobes ovate, the terminal one roundish-deltoid and usually much larger. Bracts like the leaves. Flowers racemose. Peduncles* usually about as long as the leaves. Sepals broadly ovate-triangular, cordate, glabrous, ciliated with long straight jointed hairs (which are not gland-tipped), without elevated ribs or veins in fruit. Capsule of 2 sub-globular lobes without keels or prominent veins, glabrous. Style elongated, protruding beyond the notch of the capsule. Seeds 1 or 2 in each cell of the capsule. Plant hispid-pubescent, with stiff straight jointed hairs.

In cultivated ground, hedge-banks, and waste places, &c. Very common, and generally distributed, more rare in the North.

England, Scotland, Ireland. Annual. Spring and
Early Summer.

Stem much branched from near the base; branches 3 to 18 inches long, weak, with irregular hairy strips. Lowest leaves opposite; those from which flowers are produced, *i.e.* bracts, alternate; all broader than long, ½ to 1¼ inch across, usually with 5 large entire toothlike lobes. Inflorescence at length occupying the greater part of each branch: this elongation takes place by successive internodes, each internode lengthening after flowering, the flowers expanding only at the undeveloped apex of the branch. Sepals very large in fruit, sometimes ¼ inch long, and nearly as broad at the base. Peduncles downy in lines, very short at the time of flowering, afterwards lengthening, and at length spreading-recurved. Sepals nearly equal. Corolla ⅙ inch across, pale-lilac, with purple streaks, shorter than the calyx; anthers purplish-blue.

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* The length given for the peduncles is when they have attained their extreme length after flowering. The veins on the sepals and capsule should be examined in the dried plant, as they are scarcely elevated in any of the species when fresh.

Capsule sub-didymous, each primary lobe somewhat constricted in its middle line, so that the capsule appears indistinctly 4-lobed. Plant pale dull-green, more or less thickly clothed with rather long jointed hairs. The leaves resemble in shape those of Linaria Cymbalaria.

Ivy-leaved Speedwell.

French, *Véronique à Feuilles de Lierre.* German, *Ephenblättriger Ehrenpreis.*

This common plant is also known by the names of Small Henbit, Ivy Chickweed, and in Norfolk as Winter-weed.

SPECIES II.—VERONICA POLITA. *Fries.*

PLATE DCCCCLXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXCVIII. Figs. 1, 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 428.
V. didyma, "*Ten.*" *Gr. & Godr.* Fl. de Fr. Vol. II. p. 599. *Reich. fil.* l. c.
V. agrestis, var. *Benth.* in *D. C.* Prod. Vol. X. p. 487; Handbook Brit. Fl. p. 403.

Stem weak, much branched from the base; branches procumbent or ascending at the apex. Leaves all shortly stalked, ovate or roundish-ovate, subcordate or abrupt at the base, crenate-serrate, with 7 to 11 small ovate teeth (*i. e.* 3 to 5 on each side), of which the terminal one is not conspicuously larger than the others. Bracts like the leaves. Flowers racemose. Peduncles usually as long as or longer than the leaves. Sepals broadly ovate, acuminate, not cordate, puberulent, ciliated with incurved hairs (which are not gland-tipped), conspicuously 3- to 5-ribbed and netted-veined in fruit. Capsule of 2 sub-globular sub-approximate lobes, without keels or prominent veins, downy with short simple hairs intermixed with gland-tipped ones. Style elongated, protruding beyond the notch of the capsule. Seeds 8 to 10 in each cell. Plant pubescent, with crisp jointed hairs.

Var. α, *genuina.*

Corolla shorter than the calyx.

Var. β, *grandiflora.* Bab.

Corolla longer than the calyx.

In cultivated ground, hedge-banks, and waste places. Common, and generally distributed. Var. β in Cambridgeshire and Isle of Wight.

England, Scotland, Ireland. Annual. Spring to Autumn.

Stem much branched; branches 3 inches to 1 foot long. Lowest leaves opposite; those from which flowers are produced alternate; all similar, longer than broad, ¼ to ¾ inch long, with the petioles shorter than those of V. hederifolia. Inflorescence as in that species lengthening out into a raceme much exceeding the rest of the branch. Sepals more unequal than in V. hederifolia, the lower pair longer and considerably broader than the upper; in fruit with 3 to 5 prominent ribs, with less elevated anastomosing veins. Corolla from ⅛ to ¼ inch across (in var. β, ½ inch), bright-blue, striped; the lower lip of the same colour as the others. Capsule of 2 swollen very faintly-keeled lobes, the curvature at the apex of each lobe towards and from the notch equal. Seeds smaller and narrower than in V. hederifolia. Plant greyish-green, more or less pubescent, but with the hairs not nearly so stiff as in V. hederifolia.

Grey Procumbent Speedwell.

German, *Gläzender Ehrenpreis.*

SPECIES III.—VERONICA AGRESTIS. *Linn.*

PLATE DCCCCLXXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCC. Fig. 3.

Stem weak, much branched from the base; branches procumbent or ascending at the apex. Leaves all shortly stalked, ovate, subcordate or abrupt at the base, serrate-crenate, with 9 to 15 small blunt teeth, of which the terminal one is not conspicuously larger than the others. Bracts like the leaves. Flowers racemose. Peduncles as long as or shorter than the leaves. Sepals oblong-oval or ovate-oval, obtuse, not cordate, puberulent, ciliated with gland-tipped hairs, rather indistinctly 3-ribbed and netted-veined in fruit. Capsule of 2 sub-globular compressed faintly-keeled approximate lobes, with branching prominent veins, sub-glabrous, with the exception of short gland-tipped hairs. Style rather short, scarcely projecting beyond the notch of the capsule. Seeds 4 to 5 in each cell of the capsule. Plant sparingly pubescent, with short jointed hairs, which are mostly gland-tipped on the stem and pedicels

In cultivated ground, hedge-banks, and waste places. Very common, and universally distributed, less common in Ireland.

England, Scotland, Ireland. Annual. Spring to Autumn.

V. agrestis is certainly closely allied to V. polita, but is almost always a larger plant, with the leaves more distant, often

$\frac{1}{2}$ to $\frac{3}{4}$ inch long, with more numerous, more shallow, and blunter teeth; peduncles considerably shorter; sepals narrower, more equal in size, blunter, less conspicuously veined; corolla usually smaller, paler blue, frequently nearly white with only a few blue or lilac stripes, the lowest lobe always white; the capsule with the lobes separated by a narrow acute sinus, the two inner apical boundaries of the lobes nearly straight, and parallel for some little distance, the outer boundary semicircular, with a keel running round the whole of the outside; the surface with rather prominent elevated veins, and sparingly clothed (especially along the keel) with short gland-tipped hairs. Plant yellower-green than V. polita.

Green Procumbent Speedwell.

French, *Véronique Rustique.* German, *Acker Ehrenpreis.*

SPECIES IV.—VERONICA BUXBAUMII. *Ten.*

PLATE DCCCCLXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCIX.
Billot, Fl. Gall. et Germ. Exsicc. No. 1733.
V. Persica, "*Poir.*" *Gr. & Godr.* Fl. de Fr. Vol. II. p. 598. *Reich. fil.* l. c.

Stem weak, branched from the base; branches procumbent or ascending at the apex. Leaves all shortly stalked, broadly-ovate or roundish-ovate, subcordate or abrupt at the base, coarsely-serrate or crenate-serrate, with 9 to 13 deep generally rather acute teeth. Bracts like the leaves. Flowers racemose. Peduncles two to four times as long as the leaves. Sepals lanceolate, acute, glabrous, ciliated with rather long incurved hairs (which are not gland-tipped), distinctly 5- to 7-ribbed and netted-veined in fruit. Capsule of 2 rhomboidal-ovoid much compressed strongly-keeled divaricate lobes, with a network of very prominent veins, subglabrous, except that they are sparingly clothed with gland-tipped hairs. Style very long, projecting much beyond the notch of the capsule. Seeds 5 to 8 in each cell of the capsule. Plant pubescent, with long jointed but not gland-tipped hairs.

In cultivated fields. Common, and generally distributed in England, Ireland, and the South of Scotland, extending as far North as Moray. A native of Eastern Europe and Central Asia; now thoroughly naturalized in Britain, and becoming each year more abundant.

[England, Scotland, Ireland.] Annual. Spring to Autumn.

This species bears a general resemblance to the preceding, but is a much stouter plant. The leaves sometimes are more than an inch long, broader, with the teeth larger and more acute; peduncles much longer; flowers about $\frac{1}{2}$ inch across, brilliant blue, with darker veins; the 2 pairs of sepals widely divergent. The capsule is larger and much more compressed than in the two preceding species; the lobes gradually attenuated into the sharp keel, with the notch between them forming a very obtuse angle; the surface nearly glabrous, except at the top, and with a very evident network of raised lines. Plant green.

It is probable that the name V. Persica ought to be adopted; but the plant so named is described by Poiret as having the peduncles shorter than the leaves, and the corolla-segments shorter than the calyx.

Buxbaum's Speedwell.

SECTION II.—VERONICASTRUM. *Koch.*

Annual or perennial. Flowers in terminial racemes. Pedicels not reflexed in fruit, solitary in the axils of bracts, which towards the top of the stem become much smaller than and dissimilar to the lower leaves. Corolla 4-partite; tube of the corolla shorter than wide. Seeds flat or plano-convex, scarcely excavated beneath in any of the British species except V. triphyllos.

SPECIES V.—VERONICA TRIPHYLLOS. *Linn.*

PLATE DCCCCLXXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXI. Figs. 2, 3, 4.
Billot, Fl. Gall. et Germ. Exsicc. No. 161.

Annual. Stem stiff, decumbent at the base, then ascending or erect, usually slightly branched; branches ascending. Lowest leaves stalked, ovate, entire or toothed; middle and upper ones sessile, palmately-partite, with 3 to 5 oblong or obovate entire segments. Bracts alternate, sessile, tripartite, or the uppermost ones entire, the lowest sometimes with the lateral lobes cleft. Flowers in a lax raceme. Peduncles longer than the bracts and calyx, curved upwards. Sepals oblong, obtuse, clothed and ciliated with gland-tipped hairs. Capsule orbicular, rather shorter than the calyx, obcordate, much compressed above, faintly veined, ciliated with gland-tipped hairs; the lobes contiguous, separated by a deep acute-angled or right-angled sinus between them. Style projecting beyond the notch of the capsule. Seeds excavated on the under side. Plant more or less thickly clothed with short gland-tipped hairs.

In sandy fields, on the confines of Norfolk and Suffolk, as about Thetford, Mildenhall, Cavenham, and Bury St. Edmund's ; in the sandy part of the Ainsty, and also in the neighbourhood of Doncaster, Yorkshire.

England. Annual. Spring.

Stems 2 inches to 1 foot high, simple in small examples, sparingly branched throughout, with the branches spreading and ascending. Leaves $\frac{1}{4}$ to $\frac{1}{2}$ inch long; all except those at the very base of the stem deeply divided into blunt lobes, of which the middle one is the largest. Bracts smaller than the leaves and with narrower divisions. Corolla $\frac{1}{4}$ inch across, dark-blue, rather shorter than the calyx. Sepals slightly unequal. Capsule $\frac{1}{2}$ inch long, rather swollen at the base, much compressed upwards. Seeds numerous, smaller than those of the preceding species, but excavated on the under side in the same way, in which it differs from all the following species.

The leaves of V. triphyllos turn black in drying.

Trifid Speedwell.

French, *Véronique à trois Lobes.* German, *Dreiblättriger Ehrenpreis.*

SPECIES VI.—VERONICA VERNA. *Linn.*

PLATE DCCCCLXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXX. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 599.

Annual. Stem stiff, erect, simple or slightly branched ; branches curved upwards, then erect. Lowest leaves shortly stalked, oval, entire ; intermediate stem-leaves indistinctly stalked, deeply lyrate-pinnatifid, with 2 or 3 pairs of strapshaped entire segments, and a larger terminal one, which is sometimes crenate-serrate. Bracts alternate, sessile, strapshaped-oblanceolate or elliptical, more rarely the lower ones tripartite. Flowers in a rather dense spikelike raceme. Peduncles erect, shorter than the bracts and calyx. Sepals strapshaped or strapshaped-oblanceolate, subacute, ciliated with hairs, some of which are gland-tipped. Capsule rather shorter than the calyx, inversely reniform-deltoid, ciliated with gland-tipped hairs ; lobes much compressed, divaricate, separated by a wide obtuse-angled notch. Style short, not exceeding the notch of the capsule. Seeds nearly flat on the inner face. Plant pubescent, the hairs gland-tipped at least on the upper part.

In sandy fields on the confines of Norfolk and Suffolk; about Mildenhall and Thetford, and Bury St. Edmund's; Lowestoft, Suffolk (the Rev. W. W. Newbould).

England. Annual. Spring.

Stems in British specimens 1 to 3 inches high, and even on the Continent rarely exceeding 6 inches. Leaves divided somewhat in the same manner as in V. triphyllos, but longer in proportion to their breadth, with more bristly hairs and not turning black in drying. Flowers usually close together even in fruit. Corolla shorter than the calyx, pale-blue. Capsule broader than long, the outer margins projecting between the pairs of calyx-segments; lobes often tinged with red. Plant yellowish-green, bristly-hairy, with the hairs incurved, many of those in the upper part of the stem gland-tipped.

Vernal Speedwell.

French, *Véronique Printanière.* German, *Frühlings Ehrenpreis.*

SPECIES VII.—VERONICA ARVENSIS. *Linn.*

PLATE DCCCCLXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXX. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 598.

Annual. Stem rather stiff, erect or ascending, generally branched; branches curved upwards, then erect. Leaves ovate-oval, irregularly crenate-serrate, the lowest ones shortly stalked, the rest sessile. Bracts alternate, strapshaped-oblanceolate, or the lower ones lanceolate. Flowers in a spikelike raceme, at length lax. Pedicels erect, much shorter than the bracts and calyx. Sepals strapshaped or strapshaped-oblanceolate, obtuse, ciliated with hairs, some of which are gland-tipped. Capsule much shorter than the calyx, inversely semicircular-deltoid, obcordate, ciliated with long hairs, some of which are gland-tipped; lobes much compressed, slightly divaricate, separated by a rather wide right-angled notch. Style short, not exceeding the notch of the capsule. Seeds nearly flat on the inner face. Plant pubescent, with rather long jointed and frequently gland-tipped hairs, intermixed in the upper part with short incurved hairs.

On dry sandy ground, fields, roadsides, wall-tops, &c. Very common, and generally distributed.

England, Scotland, Ireland. Annual. Spring to Autumn.

Stem 1 inch to a foot high, simple in small specimens, branched often from the very base in luxuriant ones; in the latter case the branches decumbent at the base. Leaves ¼ to ¾ inch long. Racemes lengthening in flower until they occupy about ¾ of the stem. Corolla minute, much shorter than the calyx, pale-blue, white in the centre. Capsule about as broad as long, ⅛ inch either way. Plant yellowish-green, pubescent.

V. arvensis is closely allied to V. verna, and indeed small specimens of the former have frequently been mistaken for the latter; but in V. arvensis the leaves are never cut into lobes; the pubescence of the stem is of longer and more distinctly-jointed hairs, and the fruiting raceme is more elongated and lax; the pedicels are considerably shorter; the capsule narrower, and with the lobes less divaricate.

Wall Speedwell.

French, *Véronique des Champs.* German, *Feld Ehrenpreis.*

SPECIES VIII.—VERONICA PEREGRINA, *Linn.*

PLATE DCCCCLXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXIX. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 2512.

Annual. Stem rather stiff, erect or ascending, generallybranched; branches ascending. Leaves oblanceolate; the lower ones subpetiolate; the upper ones sessile or subsessile; all obtuse, entire or remotely serrate. Bracts alternate, strapshaped-oblanceolate. Flowers in a spikelike raceme, at length lax. Peduncles erect, much shorter than the bracts and calyx. Sepals strapshaped, subobtuse, glabrous. Capsule half as long as the calyx, inversely deltoid, obcordate, much shorter than the calyx, glabrous; lobes much compressed, scarcely divaricate, separated by a very shallow indistinct notch. Style very short, protruding beyond the notch of the capsule. Seeds nearly flat on the inner face. Plant glabrous.

A weed in gardens and cultivated ground. Perth, Scotland; Belfast, Londonderry, and Strabane, Ireland; also in Jersey. First noticed in 1836, at Barnescourt, Strabane. A native of North and South America, but naturalized in Europe.

[Scotland, Ireland.] Annual. Spring to Autumn.

Stems 3 to 8 inches high, with the branches less spreading than in any of the preceding species. Leaves ½ to 1 inch long, somewhat fleshy, passing gradually into the bracts; uppermost bracts very narrow, much exceeding the flowers. Corolla minute, not nearly equalling the calyx, bluish-lilac or nearly white. Capsule $\frac{1}{7}$ inch long, with a very shallow notch. Seeds very numerous, minute. Plant dull-green, quite glabrous.

I am indebted to Dr. Samuel Rea of Belfast for fresh specimens.

Annual Smooth Speedwell.

French, *Véronique Voyageuse.* German, *Fremder Ehrenpreis.*

SPECIES IX.—VERONICA SERPYLLIFOLIA. *Linn.*

PLATES DCCCCLXXVIII. DCCCCLXX

Perennial. Stem rather stiff, decumbent and rooting at the base and then erect, or wholly decumbent, branched chiefly at the base; branches curved, ascending or prostrate. Leaves oval, or roundish oval, entire or repand, obtuse; the lower ones stalked; the upper sessile or subsessile. Bracts strapshaped-oblanceolate, alternate. Flowers in a spikelike raceme, at length rather lax. Pedicels erect, shorter than the bracts, equalling or exceeding the calyx. Sepals oblanceolate or obovate, obtuse, sub-glabrous, ciliated with gland-tipped hairs. Capsule about as long as the calyx, inversely semicircular-deltoid, obcordate, much compressed, without prominent veins, sub-glabrous or more or less clothed with gland-tipped hairs; lobes scarcely divaricate, separated by a shallow notch. Style very long, equalling the capsule in length. Seeds slightly excavated on the inner face. Plant glabrous, except the stem and pedicels, which are more or less thickly clothed with hairs; those on the upper part sometimes gland-tipped.

SUB-SPECIES I.—Veronica eu-serpyllifolia.

PLATE DCCCCLXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXVIII. Figs. 2, 3
Billot, Fl. Gall. et Germ. Exsicc. No. 823.
V. serpyllifolia, var. *a*, *Bab.* Man. Brit. Bot. ed. v. p. 249. *Hook.* & *Arn.* Brit. Fl. ed. viii. p. 305.

Stems branched at the very base, where they are decumbent, then erect. Leaves oval, generally repand-crenate. Raceme many-flowered, at length occupying half the stem or more. Bracts and pedicels with short hairs generally not gland-tipped. Corolla nearly white, with bluish-lilac lines. Capsule rather shorter than the sepals, sub-glabrous, with a few gland-tipped hairs at the apex, the notch between the segments very shallow.

In fields, damp pastures, waste places, and by roadsides, &c. Very common, and generally distributed.

England, Scotland, Ireland. Perennial. Spring to Autumn.

Stems 3 inches to 1 foot high. Leaves $\frac{1}{4}$ to $\frac{3}{4}$ inch long. Flowers $\frac{1}{5}$ inch across; capsule $\frac{1}{8}$ inch long, broader than long, rounded at the base. Plant dull-green, with the leaves nearly glabrous.

Perennial Smooth Speedwell.

SUB-SPECIES II.—**Veronica humifusa.** *Dicks.*

PLATE DCCCCLXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXVIII. Fig. 4 ?
Dicks. in Trans. Linn. Soc. Vol. II. p. 288.
V. serpyllifolia, β humifusa, *Bab.* Man. Brit. Bot. ed. v. p. 249.
V. serpyllifolia, β alpina, *Hook. & Arn.* Brit. Fl. ed. viii. p. 305.
V. serpyllifolia, var. borealis, *Läst.* *Reich. fil.* l.c. p. 44 ?

Stems branched at the base, and a little way above it, procumbent throughout. Leaves broadly-oval or roundish, often entire or merely repand. Raceme few-flowered, short, not occupying more than a fourth of the stem when in fruit. Rachis and pedicels clothed with jointed gland-tipped hairs. Corolla blue, with darker lines. Capsule longer than the sepals, densely ciliated with gland-tipped hairs, the notch between the segments rather shallow.

In oozy places on mountains. Common in the Scotch Highlands; also in North Wales, and Northumberland.

England, Scotland. Perennial. Late Summer and Autumn.

This plant is usually considered as a mere variety of V. serpyllifolia, but it appears to be permanently distinct from the common lowland form of that plant. Mr. H. C. Watson cultivated it for many years in his garden, and it continued quite distinct, though, unfortunately, he was never able to raise it from seed. I had living plants sent from Braemar by Mr. Charles Bailey, of Manchester, which in the succeeding season retained all their characters, but perished in the dry weather of summer, which did not affect the ordinary form of V. serpyllifolia. The plant has so much the aspect of V. alpina, that it was mistaken for it by Lightfoot, and has been by several other botanists. The stems are prostrate, 2 to 6 inches long, the branches rooting at the nodes. The leaves are broad, more nearly entire, and more shining than in V. eu-serpyllifolia; the flowers fewer, larger, bright-blue, on longer pedicels; the sepals broader and shorter; the capsule is longer in proportion to the sepals, more deeply notched, and much more hairy.

Prostrate Smooth Speedwell.

SPECIES X.—VERONICA ALPINA. *Linn.*

PLATE DCCCCLXXX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXVI. Figs. 1, 2, 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 2721.

Perennial. Stem wiry, decumbent but scarcely rooting at the base, then erect, branched only at the base; branches erect or ascending. Leaves equally distributed over the stem and branches, those in the middle of the stem largest, oval, obtuse, entire or faintly denticulate-serrate; the lower ones shortly stalked, the rest sessile. Bracts narrowly elliptical or strapshaped, or the lower ones sometimes oval-elliptical, generally opposite. Flowers few, in a short dense raceme, remaining compact in fruit. Pedicels erect, shorter than the bracts, but nearly equal to the calyx. Sepals elliptical, subacute, ciliated with long jointed hairs without glandular tips. Capsule nearly twice as long as the calyx, obovate-oval, compressed, emarginate, with prominent veins, glabrous; lobes approximate, separated by a very indistinct notch. Style one-fourth as long as the capsule. Seeds nearly flat on the inner face. Plant glabrous, except the upper part of the stem, pedicels, margins of the leaves, bracts, and sepals, which are clothed with jointed hairs not tipped by glands.

By the sides of rills on mountains. Rare. On Ben Lomond, Stirlingshire; Breadalbane Mountains, Perthshire (where, however, I could not find it); Moray; Ben Nevis, and Badenoch Mountains, Inverness-shire; and more plentifully on the Clova Mountains, Forfarshire; and Loch-na-Gar, Glen Callater, and Bræmar, Aberdeenshire.

Scotland. Perennial. Late Summer and Autumn.

Stems 3 to 8 inches high, not rooting above the point where the leaves commence. Leaves few, $\frac{1}{2}$ to 1 inch long. Corolla $\frac{1}{5}$ inch across, dark-blue. The flowers at first almost sessile and in a head, but in fruit forming a short dense raceme. Bracts, sepals, and capsule often tinged with dull-blue. Capsule $\frac{1}{4}$ inch long, with a very slight notch. Plant dark-green, turning black in drying.

The more erect and wiry stems, fewer leaves, and differently shaped capsule, distinguish this from V. humifusa.

Erect Alpine Speedwell.

French, *Véronique des Alpes.* **German,** *Gebirgs Ehrenpreis.*

SPECIES XI.—VERONICA SAXATILIS. *Linn.*

PLATE DCCCCLXXXI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXVII. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 2329.
V. fruticulosa, β pilosa, *Gr. & Godr.* Fl. de Fr. Vol. II. p. 593. *Benth.* in *D. C.* Prod. Vol. X. p. 480.

An under-shrub. Stem woody and decumbent at the base, much branched; branches wiry, ascending, or erect, simple. Leaves closest on the barren shoots and at the base of the flowering-stems; lower ones obovate, shortly stalked; upper ones subsessile, oval or oblong-oblanceolate; all obtuse, entire or crenate-serrate. Bracts opposite, resembling the leaves. Flowers in a short sub-corymbose raceme, not lengthening in fruit. Pedicels erect, twice as long as the bracts and calyx. Sepals oblong-oblanceolate, obtuse, ciliated with short incurved hairs without glands at the tips. Capsule half as long again as the calyx, subrhomboidal-elliptical, faintly emarginate, much compressed, without conspicuous prominent veins, clothed with short incurved hairs; lobes approximate, with scarcely any notch between them. Seeds nearly flat on the inner face. Style as long as the capsule. Plant glabrous, except the branches, pedicels, calyx, and capsule, which are clothed with short incurved hairs without glandular tips.

On hedges of alpine rocks. Rare. Known to occur only on the Clova Mountains, Forfarshire, and the Breadalbane Mountains, Perthshire. It has been reported from Ben More, in Sutherland; and probably the plant observed on Ben Cruachan, in Argyleshire, by the Rev. Dr. Walker, belonged to this species, and not to V. fruticulosa.

Scotland. Shrub. Late Summer.

A small much-branched shrub, with the barren branches spreading, the flowering branches erect from a decumbent base, 2 to 4 inches high. Leaves ¼ to ½ inch long, distant except on the barren shoots and at the base of the flowering branches, thick, the lower ones and those on the barren branches generally entire; those on the flowering-shoots more or less bluntly serrated in the middle. Flowers 2 to 6. Corolla ½ inch across, bright-blue, with darker stripes, and tinged with red at the throat. Capsule ¼ inch long. Plant deep-green, scarcely turning black in drying.

The large flowers on long erect pedicels distinguish this from all the preceding species.

Blue Rock Speedwell.

French, *Véronique des Rochers.*

SECTION III.—PSEUDO-LYSIMACHIUM. *Koch.*

Perennial. Flowers in terminal racemes. Pedicels not reflexed in fruit, solitary in the axils of bracts dissimilar to and much smaller than the leaves. Calyx 4- (rarely 5-) partite. Tube of corolla as long as or longer than wide.

SPECIES XII.—**VERONICA SPICATA.** *Linn.*

PLATES DCCCCLXXXII. DCCCCLXXXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXIII.
Billot. Fl. Gall. et Germ. Exsicc. No. 426.

Stems stiff, branched only from the base, or quite simple, decumbent at the base, then erect. Leaves crowded at the extremity of the barren shoots and at the base of the flowering-stem, and more thinly scattered over its whole length; the lowest ones shortly stalked, oblong or oval-elliptical; the upper stem-leaves nearly sessile, elliptical or strapshaped-elliptical; all crenate-serrate or serrate. Bracts alternate, strapshaped. Flowers in a long dense terminal spikelike raceme, slightly elongating in fruit. Pedicels much shorter than the bracts and calyx, erect. Sepals 4, oblong-elliptical, obtuse, ciliated with jointed but not gland-tipped hairs. Tube of the corolla rather longer than wide. Capsule about as long as the sepals, subglobular-ovoid, slightly compressed, scarcely emarginate, clothed with jointed hairs without glands at the tips; lobes separated by scarcely any notch, but with a deep line at the junction of the carpels. Style twice as long as the capsule. Seeds nearly flat on the inner face. Plant pubescent with jointed hairs, intermixed on the upper part of the stem and on the bracts with jointed gland-tipped hairs.

Var. *α, genuina.*

PLATE DCCCCLXXXII.

V. spicata, *Linn.* Sp. Plant. p. 14. *Sm.* Eng. Bot. No. 2.

Lowest leaves insensibly attenuated into their petioles, serrated principally about the middle.

Var. β, *hybrida.*

PLATE DCCCCLXXXIII.

V. hybrida, *Linn.* Sp. Plant. p. 14. *Sm.* Eng. Bot. No. 673.

Lowest leaves rather abruptly contracted into their petioles; leaves toothed throughout. Whole plant larger, and with broader leaves than in var. α.

Var. α on chalky or sandy heaths. Very rare. Beacon Course, Newmarket Heath, Cambridge; near Bury St. Edmund's, Suffolk. Var. β on ledges of limestone rocks in the West of England; St. Vincent's Rocks, Gloucester; Craig Brieddin, Montgomery; on Gloddaeth and Great Orme's Head, Carnarvon; Disserth, Flint; Barmouth, Merioneth; Humphrey Head, Lancashire; Westmoreland.

England. Perennial. Late Summer and Autumn.

Rootstock branched, shortly creeping, producing several stems 4 to 8 inches high in var. α, 6 to 18 inches high in β. Leaves $\frac{3}{4}$ to 2 inches long. Raceme 1 to 6 inches long. Flowers $\frac{1}{4}$ inch across, bright-blue, with very long stamens and styles. Corolla-limb with long narrow acute segments; throat bearded with white hairs. Capsules $\frac{1}{6}$ inch long. Plant dull dark-green.

Var. β, though considered a different species by Linnæus and Smith, appears to be rather a luxuriant state than a true variety.

Spiked Speedwell.

French, *Véronique en Épi.* German, *Ahrentragender Ehrenpreis.*

SECTION IV.—CHAMÆDRYS. *Koch.*

Perennial. Flowers in axillary racemes. Peduncles springing from the axils of the leaves, opposite or solitary by abortion, bearing a terminal raceme. Tube of corolla shorter than wide. Calyx 4- or 5-partite.

SPECIES XIII.—VERONICA OFFICINALIS. *Linn.*

PLATES DCCCCLXXXIV. DCCCCLXXXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCVI. Figs. 1, 2, 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 2720.

Stems rather wiry, decumbent, rooting at the base, branched only near the base, with the branches ascending only at the apex. Leaves shortly stalked, obovate, oblanceolate, oval, or elliptical, attenuated into their petioles, crenate-serrate, obtuse or subacute.

Flowers in dense axillary many-flowered spikelike racemes, elongated in fruit. Peduncles alternate, or more rarely opposite, longer than the leaves ; pedicels shorter than their bracts, erect, a little shorter than the calyx. Sepals 4, oblong-elliptical, obtuse, usually ciliated with gland-tipped hairs. Capsule half as long again as the calyx, inversely deltoid, obcordate or emarginate, compressed, without elevated veins, pubescent, ciliated with gland-tipped hairs; lobes divaricate, separated by an obtuse-angled notch. Style rather longer than the capsule. Seeds nearly flat on the inner face. Plant usually pubescent, with jointed hairs intermixed on the peduncles, pedicels, bracts, sepals, and capsule, with gland-tipped hairs, or rarely nearly glabrous.

Var. α, *genuina.*

PLATE DCCCCLXXXIV.

V. officinalis, *Sm.* Eng. Bot. No. 765.

Capsule obcordate, or rather deeply notched.

(?) Var. β, *hirsuta.*

PLATE DCCCCLXXXV.

V. hirsuta, *Hopkirk.* *Hook.* in E. B. S. No. 2673. *Sm.* Eng. Fl. Vol. I. p. 22.

Capsule entire at the apex. Leaves much smaller and narrower.

On dry banks, mountain pastures, and woods. Very common, and generally distributed. Var. β found in Carrick, Ayrshire, by Mr. James Smith, of Monkwood Nursery, Ayr.

England, Scotland, Ireland. Perennial. Summer
and Autumn.

A very variable plant, with the stem 3 to 18 inches long. Leaves ¼ to 2 inches, varying much in breadth, with more or less distinct petioles. Racemes in fruit 1½ to 8 inches long, generally alternate, except in luxuriant specimens, when they are opposite; sometimes when near the apex of the stem they appear terminal, but are not really so. Flowers ⅙ inch across, pale-lilac with purple lines. Capsule ⅙ inch long, varying in the depth of the notch. Plant dull-green, varying in the degree of hairiness, sometimes glabrous, except the pedicels, when it is V. Allioni of Hooker's "Flora Scottica," but not of Villars.

Var. β, of which I have seen no wild specimens, is a very remarkable form, which preserves its characteristics under cultivation; but I hesitate to consider it as a sub-species, because the typical plant is liable to great variation in the very points in which it differs from V. hirsuta, and it would require to be studied in its native habitat before a definite opinion could be given.

Common Speedwell.

French, *Véronique Officinale.* German, *Gebräuchlicher Ehrenpreis.*

This species of Veronica was recognized among our native medical remedies until very lately. Its leaves possess astringency and bitterness. An infusion of them has been recommended as a substitute for tea, but they are very unpalatable, and are destitute of any principle analogous to theine. Among the Welsh peasantry great virtues are still attributed to the Speedwell, and the emperor Charles V. is said to have used it as an "arcanum" for the gout.

SPECIES XIV.—VERONICA CHAMÆDRYS. *Linn.*

PLATE DCCCCLXXXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCIV. Figs. 2, 3, 4.
Billot, Fl. Gall. et Germ. Exsicc. No. 2114.

Stems rather wiry, decumbent, rooting only close to the base, then ascending, branched only at the base; branches ascending. Leaves sessile or subsessile, broadly ovate, subcordate at the base, obtuse, deeply inciso-crenate or crenate-serrate. Flowers in lax axillary racemes elongating in fruit. Peduncles mostly opposite, much longer than the leaves; pedicels longer than their bracts and calyx (generally twice as long). Sepals 4, strapshaped-lanceolate, acute, ciliated with jointed hairs mostly tipped with minute glands. Capsule half as long as the calyx, inversely deltoid-semicircular, emarginate, much compressed, without conspicuous elevated lines, pubescent, ciliated with jointed hairs which are often tipped with minute glands; lobes divaricate, separated by a very obtuse-angled sinus. Style half as long again as the capsule. Stem with 2 opposite hairy strips; leaves with jointed hairs; peduncles, pedicels, bracts, calyx, and capsule with long gland-tipped hairs.

On banks, pastures, woods, &c. Very common, and generally distributed.

England, Scotland, Ireland. Perennial. Spring and
Early Summer.

Rootstock creeping, branched, passing insensibly into the stems, which are wiry at the base, and root very little above the point where the leaves commence, 3 to 18 inches long. Leaves ½ to 1½ inch long. Peduncles elongated, 2 to 6 inches long. Flowers rather close when they first expand, but becoming distant after the fall of the corolla. Corolla $\frac{1}{2}$ inch across, bright-blue, with darker lines, rarely pale. Capsule rather broader than long, scarcely $\frac{1}{8}$ inch long, often abortive. Plant green, variable in hairiness, not turning black in drying. Autumnal shoots with the leaves shortly stalked.

Germander Speedwell.

French, *Véronique Petit Chêne.* German, *Germander Ehrenpreis.*

This beautiful little plant is sometimes, though erroneously, called "*eyebright ;*" and poets have celebrated its charms under such various names, that it is difficult to recognize it as our common little Speedwell. It is often mistaken for the Forget-me-not by mere superficial observers, and has been immortalized as such in poetic lines. Ebenezer Elliott writes of the

> " Blue eye-bright ! Loveliest flower of all that grow
> In flower-loved England ! Flower whose hedge-side gaze
> Is like an infant's !

And another poet tells us of

> " Flowers so blue and golden,
> Stars that in earth's firmament do shine.
>
> And the poet, faithful and all-seeing,
> Sees alike in stars and flowers a part
> Of the self-same universal being
> Which is throbbing in his brain and heart.
>
> Everywhere about us they are glowing,
> Some like stars, to tell us spring is born ;
> Others, their blue eyes with tears o'erflowing,
> Stand like Ruth amid the golden corn."

It is probable that in " Hyperion " reference is made to the same familiar plant when the author makes his hero stoop " to pluck one bright-blue flower which bloomed alone in the vast desert, and looked up to him, as if to say, ' Oh ! take me with you ; leave me not here companionless.' "

There is also good reason to think that Hogg, the Ettrick Shepherd, had in his mind the azure-blue Germander Speedwell when he wrote—

> " When the blewart bears a pearl,
> And the daisy turns a pea ;
> When the bonnie lenken gowan
> Has fauldit up her e'e."

Our little plant answers fairly to his description, closing at night so as to show only the pale and pearly side of its bright petals, and looking as though its tiny stalk bore " a pearl " rather than a flower. Among the old herb doctors this little plant was celebrated as a vulnerary, and a remedy in various skin diseases, and was recommended as a specific against pestilent fevers. Its virtues are so curiously introduced by Culpepper in his Herbal of 1624, that we cannot refrain from quoting him entire :—

"Bees are industrious, and go abroad to gather honey from each plant and flower, but drones lie at home and eat up what the bees have taken pains for; just so do the College of Physitians lie at home, and domineer and suck out the sweetness of other men's labours and studies, themselves being as ignorant in the knowlege of herbs as a child of four years old, as I can make appear to any rational man by their last Dispensatory. Now, then, to hide their ignorance there is no easier way in the world than to hide knowlege from their countrymen that so no body might be able so much as to smell out their ignorance. When simples were more in use, men's bodies were better in health by far than now they are, or shall be, if the College can help it. The truth is, this herb is of a fine cooling, drying quality, and an ointment or plaster of it might do a man a courtesie that hath not any hot virulent sores."

SPECIES XV.—**VERONICA MONTANA** *Linn.*

PLATE DCCCCLXXXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCV. Figs. 3, 4.
Billot, Fl. Gall. et Germ. Exsicc. No. 1730.

Stems somewhat wiry, decumbent, rooting only close to the base, branched only at the base; branches decumbent, ascending only at the apex. Leaves shortly stalked, broadly ovate, abrupt or subcordate at the base, sub-obtuse, acute, deeply serrate, or crenate-serrate; petiole shorter than the lamina. Flowers in very lax axillary racemes, elongating in fruit. Peduncles mostly alternate, much longer than the leaves; pedicels longer than their bracts and calyx (generally twice or thrice as long). Sepals 4, rhomboidal-oblanceolate, subacute, ciliated with jointed hairs usually not tipped with glands. Capsule twice as long as the calyx, sub-orbicular, broader than long, very much compressed, cordate at the base, and obcordate at the apex, glabrous, with elevated veins, surrounded by a prominent border with elevated points from which spring jointed hairs which are sometimes tipped with minute glands; lobes approximate, separated by an obtuse-angled sinus both at the base and the apex. Style rather longer than the capsule. Stem hairy all round; leaves with short jointed hairs; peduncles, pedicels, bracts, sepals, and margins of the capsule with long jointed hairs frequently tipped with minute glands.

In woods and moist shady hedge-banks. Not uncommon in England; rare in Scotland, but extending as far north as Moray, Banff, and Dumbarton; rather rare in Ireland.

England, Scotland, Ireland. Perennial. Spring and Early Summer.

V. montana bears a considerable resemblance to the much more common V. Chamædrys, but the stems are less wiry, more decumbent, and hairy all round; the leaves always stalked, the stalk generally about half as long as the blade, the incisions are not nearly so deep and more acute. The racemes are shorter, 2 to 4 inches long, with the flowers much more laxly disposed. The flowers are not above $\frac{1}{4}$ inch in diameter, nearly white, with reddish-lilac veins. The sepals are much broader. The capsule is half an inch long, not at all narrowed towards the base, and of a very different shape. The plant is of a lighter green, and turns black in drying. The hairs on the leaves are shorter.

Mountain Speedwell.

French, *Véronique de Montagne.* German, *Berg Ehrenpreis.*

SPECIES XVI.—VERONICA SCUTELLATA. *Linn.*

PLATE DCCCCLXXXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCIII. Figs. 2, 3.
Billot, Fl. Gall. et Germ. Exsicc. No. 1728.

Stem very brittle, slender, decumbent and rooting at the base, paniculately branched, or more often only at the base; flowering branches erect or ascending-erect. Leaves sessile, lanceolate-strapshaped or lanceolate, or oblong-lanceolate, rounded at the base, acute, entire or callously-denticulate. Flowers rather few, in lax axillary racemes, slightly elongating in fruit. Peduncles solitary, alternate, longer than the leaves; pedicels much longer than their bracts and calyx, usually three or four times as long, at length divaricate or reflexed. Sepals 4, oval-ovate, acute, glabrous or ciliated with jointed hairs, which are sometimes tipped with minute glands. Capsule half as long again as the calyx, suborbicular, broader than long, very much compressed, emarginate or slightly cordate at the base, deeply obcordate at the apex, with elevated lines, glabrous, or very sparingly hairy, bordered, but the border without prominent points, sometimes ciliated with gland-tipped hairs; lobes slightly divaricate, separated by a right-angled notch. Style rather shorter than the capsule. Plant glabrous, or more rarely pubescent.

In spongy bogs, wet meadows, banks of ponds and ditches and pools in which the water dries up in summer. Rather scarce, but universally distributed.

England, Scotland, Ireland. Perennial. Summer
and Autumn.

Rootstock producing numerous barren shoots or stolons, which are prostrate, and creep amongst the moss and weeds among which the plant grows. Stem 4 inches to 2 feet high, slender, breaking readily at the nodes. Leaves 1 to 2½ inches long, variable in breadth, from ⅛ to ½ inch. Racemes 1 to 6 inches long, spreading or reflexed in fruit, when the pedicels also are divaricate. Corolla about ¼ inch across, white, generally with pink lines. Capsule ⅙ inch long, very similar to that of V. montana, but not so deeply notched at the base, and much more deeply so at the apex, and destitute of the protuberances on the border. Plant usually glabrous, rather dull-green and slightly shining, but often more or less pubescent, sometimes wholly clothed with jointed hairs, in which case it has been distinguished as a species under the name V. parmularia, by Turpin and Poiteau, in their "Flore Parisienne;" nevertheless it scarcely deserves even the name of a variety, the hairiness apparently depending on situation, as it is usually in dry places that the pubescent form occurs. Plant turning blackish in drying.

Marsh Speedwell.

French, *Véronique à Écusson.* German, *Schildfrüchtiger Ehrenpreis.*

SPECIES XVII.—VERONICA ANAGALLIS. *Linn.*

PLATE DCCCCLXXXIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCII. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 596.

Stem succulent, very stout, hollow, erect, or sometimes slightly decumbent at the base, paniculately branched or simple in small specimens, branches curving upwards. Leaves sessile, semi-amplexicaul, oblong-lanceolate or oblong-ovate, subcordate, acute, nearly entire and callously denticulate or serrate-denticulate. Flowers very numerous, in lax axillary racemes elongating much in fruit. Peduncles opposite, much longer than the leaves ; pedicels longer than the calyx, and usually exceeding the bracts, more rarely equal to or shorter than the bracts (rarely twice as long), at length spreading. Sepals 4, elliptical, acute, glabrous or with a few gland-tipped hairs. Capsule about two-thirds the length of the calyx or equalling it, orbicular, slightly compressed, emarginate, without elevated veins, surrounded by a border without projecting points ; lobes contiguous, separated by a slight notch and a deep impressed line at the junction of the carpels. Style about half the length of the capsule. Plant glabrous, or with the peduncles, pedicels, and sepals sparingly clothed with short gland-tipped hairs.

In ditches, and on the margins of ponds and slow streams. Rather scarce, but generally distributed throughout the kingdom.

England, Scotland, Ireland. Biennial or Perennial.
Summer and Autumn.

Stem 1 to 3 feet high. Leaves 2 to 5 inches long, somewhat like those of Epilobium obscurum or the glabrous form of E. hirsutum. Racemes 3 inches to 1 foot long. Flowers $\frac{1}{6}$ inch across, whitish or lilac with darker lines. Capsule about $\frac{1}{8}$ inch long, swollen below. Plant green, somewhat succulent, shining, turning blackish in drying.

The form with the inflorescence clothed with gland-tipped hairs is V. anagalliformis of Boreau.

Water Speedwell.

French, *Véronique Mouron d'Eau.* German, *Wasser Ehrenpreis.*

SPECIES XVIII.—VERONICA BECCABUNGA. *Linn.*

PLATE DCCCCXC.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCI.
Billot, Fl. Gall. et Germ. Exsicc. No. 597.

Stem succulent, stout, hollow, decumbent and rooting at the base, then ascending, paniculately-branched, or simple in small specimens; branches spreading. Leaves very shortly stalked, oval or oblong-oval, rounded at both ends, nearly entire and callously-denticulate or crenate-serrate or serrate. Flowers rather numerous, in lax axillary racemes elongating slightly in fruit. Peduncles opposite, a little longer than the leaves; pedicels longer than the calyx, and usually longer than the bracts, more rarely equal or shorter than the bracts, at length spreading. Sepals 4, elliptical-ovate, acute, glabrous. Capsule nearly as long as the calyx, orbicular, slightly compressed, emarginate, with indistinct elevated veins, glabrous, surrounded by a border without projecting points; lobes contiguous, separated by a slight notch and a deep-impressed line at the junction of the carpels. Style about three-fourths of the length of the capsule. Plant glabrous.

On the margins of brooks, ditches, ponds, &c. Very common, and generally distributed.

England, Scotland, Ireland. Perennial. Spring
to Autumn.

Stem 9 inches to 3 feet long, decumbent, except at the extremity. Leaves 1 to 3 inches long, the petiole distinct, but very short, rarely above twice its own breadth. Racemes 2 to 4 inches long. Bracts variable in length. Flowers bright-blue, with darker veins, rarely pink, when it is V. limosa (Lejean). Capsule $\frac{1}{5}$ inch long. Plant green, glabrous, shining, succulent, turning blackish in drying.

The pink-flowered form scarcely deserves to be considered a variety, the additional character which is given of it, viz. that the pedicels are shorter than the bracts, occurs frequently in the common blue-flowered form.

Brooklime.

French, *Véronique Aquatique.* German, *Bachbunge.*

The specific name of this plant seems to be derived from the German name *Bachbunge*, signifying a brook, and recalling the old provincial word *beck* for the same thing. Dr. Prior tells us that the name Brooklime is in old writers Broklempe or Lympe, from its growing in the *lime* or mud of brooks, the Anglo-Saxon word *lime* coming from the Latin *limus*, a word that, from mud having been used in the rude buildings of Anglo-Saxon times, has come to be applied to the calcareous stone of which mortar is made at the present day, and indicates the reason why few or no buildings of that period have been preserved, while so many much older Roman ones have withstood dilapidation ; viz. that the lime used was merely mud.

The leaves and young stems of the Brooklime were once in favour as an antiscorbutic, and even now the young shoots are sometimes eaten as watercresses, the two plants being generally found growing together. They are perfectly wholesome, and might be more frequently employed but for prejudice. In olden times the leaves were applied to wounds, and are now sometimes bruised and put on burns. The juice, with that of scurvy-grass and Seville oranges, formed the " spring juices " once valued as an antiscorbutic.

TRIBE VIII.—EUPHRASIEÆ.

Corolla tubular, bilabiate ; the upper lip erect or arched, covered by the under lobes in bud. Stamens 4, didynamous ; anther-lobes usually mucronate. Inflorescence simple, indefinite. Leaves generally opposite or verticillate, very rarely alternate Plants generally (always ?) parasitical in the early stage of their growth.

GENUS X.—**EUPHRASIA.** *Tournef.*

Calyx tubular or sharply bellshaped, not inflated, 4-cleft, rarely with a minute fifth tooth. Corolla tubular and bilabiate; the upper lip broad, concave, bilobed, with the lobes conspicuous, broad, and usually spreading; lower lip 3-cleft, with the lobes spreading, obtuse or (more often) emarginate ; palate not plicate. Stamens 4, sub-didynamous or didynamous, placed under the upper lip of the corolla, included or exserted ; anthers 2-celled, with the lobes mucronate; the lower anther-lobes of the shorter stamens with the mucro often produced into an awn. Capsule oblong, compressed, obtuse or notched, opening loculicidally by 2 entire or bifid valves. Seeds very numerous and very minute, fusiform, striated.

Small annuals or perennials, with branched stems and opposite leaves. Flowers in dense or interrupted spikes.

The name of this genus of plants comes from ευφρασια (*euphrasia*), hilarity, in allusion to its reputed power of restoring impaired vision.

SPECIES I.—EUPHRASIA OFFICINALIS. *Linn.*

PLATES DCCCCXCI. DCCCCXCII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXXI. MDCCXXXII.
Billot, Fl. Gall. et Germ. Exsicc. No. 62.

Annual. Leaves ovate or lanceolate; the lower ones inciso-crenate-serrate or crenate-serrate. Bracts leaflike, inciso-serrate. Calyx with the lobes narrowly-lanceolate, nearly equal. Corolla with the lobes of the upper lip spreading, those of the lower lip emarginate. Capsule oblong, sub-truncate, slightly emarginate. Anthers pilose, mucronate, the two shorter ones with the inner cells produced into a long awn at the base.

Var. α, *genuina.*

PLATE DCCCCXCI.

E. officinalis, *Fries,* Sum. Veg. Scand. pp. 19, 195.

Bracts ovate or ovate-triangular, rounded or subcordate at the base; lower lip of the corolla longer than, or at least equalling, the tube.

Var. β, *gracilis.*

PLATE DCCCCXCII.

E. gracilis, *Fries,* Mant. III. p. 62; Sum. Veg. Scand. pp. 19, 195.

Bracts sub-rhomboidal, wedgeshaped at the base. Lower lip of the corolla shorter than the tube. Plant with the branches more slender and rigid than in var. α.

In meadows, pastures, heaths, &c. Very common, and generally distributed.

England, Scotland, Ireland. Annual. Summer and Autumn.

Stem 1 or 2 inches to 18 inches high, wiry, copiously branched with opposite branches, except in small specimens. Leaves $\frac{1}{8}$ to $\frac{1}{2}$ inch long, sessile or subsessile, with 3 to 6 teeth on each side. Flowers in terminal spikes, at first very dense, afterwards more lax. Bracts like the leaves, but usually with sharper divisions. Calyx about as long as the bracts (in var. α usually a little shorter, with triangular teeth; in var. β a little longer than the bracts, with narrowly triangular aristate teeth). Corolla very variable in size, $\frac{1}{6}$ to $\frac{1}{3}$ inch long, white or pale-lilac, with dark-purple stripes within, and a yellow spot at the base of the middle lobe of the lower lip. Capsule a little shorter than the calyx, $\frac{1}{8}$ to $\frac{1}{4}$ inch long. Seeds very numerous, minute, fusiform, striated. Plant deep-green, pubescent or sub-glabrous, the pubescence sometimes glandular, sometimes not.

A very variable plant, which many of the continental authors divide into numerous species; but it is only by taking single characters that it is possible to separate these. Grenier and Godron divide it by the hairs on the calyx being glandular or non-glandular; but each of these characters runs through a whole series of forms parallel to each other, and the two series are not separated by any conspicuous difference in habit. I have therefore followed Fries's subdivision; for although his species graduate insensibly into one another, there is a marked difference in the habit of the two forms.

Common Eyebright.

French, *Eufraise Officinale.* German, *Gebräuchlicher Augentrost.*

There is a legend that the linnet uses this plant to clear its sight, and it has long been in vogue for diseases of the eye. It is the euphrasy of Spenser, Milton, and others of our old poets, and was believed at their time to have wonderful efficacy in the cure of weak eyes and dimness of vision. Thus we find Milton describing the Archangel as helping Adam to see more clearly :—

> "Then purged with euphrasie and rue
> His visual orbs, for he had much to see."

Spenser, too, told how the euphrasie could

> "Give dim eyes to wander leagues around."

And Cowley has much to say of the wondrous uses of this little wild flower, and thus addresses it :—

> "To my eyes reveal
> Thyself, and gratefully thy poet heal,
> If I of plants have anything deserved,
> Or in my verse their honour be preserved.
> Thus lying on the grass, and sad, pray'd I."

He then represents the plant as declaring its own virtues :—

> "Then I am useful. If you would engage
> To count my conquests, or the wars I wage,

> The evening star much sooner would go down
> And all the fields in dewy nectar drown.
> You know Arnoldus (if you've read him o'er)
> Did sight by me to men stone-blind restore;
> 'Tis true, and my known virtue ought to be
> The more esteem'd for that strange prodigy."

Modern science tells us that the whole herb is slightly astringent, and has a bitter flavour, but its medicinal properties are very insignificant, and its use as an eye-wash is only retained by the peasantry in some remote country districts. Its use in diseases of the eye probably originated in the doctrine of signs, the brilliant white of its flowers indicating its efficacy in improving the sight. Gerarde tells us that "Eyebright stamped and laid upon the eyes, or the juice thereof mixed with white wine and dropped into the eyes, or the distilled water, taketh away the darknesse and dimnesse of the eyes, and cleareth the sight."

GENUS XI.—BARTSIA. *Linn.*

Calyx tubular or bellshaped, not inflated, 4-cleft. Corolla tubular and bilabiate; the upper lip rather broad, erect, concave, entire or emarginate, but without spreading lobes; lower lip 3-lobed, with the lobes entire, sub-erect or erect-spreading; palate generally convex, without plaits or with 2 bosses. Stamens 4, didynamous, placed under the upper lip of the corolla, included or exserted; anthers 2-celled, with the lobes all equally mucronate. Capsule globose- or oblong-ovoid, scarcely or only slightly compressed, pointed or (more rarely) obtuse or emarginate, opening loculicidally by 2 valves. Seeds numerous, of various size.

Annuals or perennials, only distinguishable from the species of Euphrasia by the upper lip of the corolla being entire or nearly so; indeed there can be very little doubt that the genera Euphrasia and Bartsia ought to be united: E. minima (Schleid.) has a corolla scarcely differing from that of Bartsia.

This genus of plants was named by Linnæus after his friend Dr. John Bartsch, of Königsberg, a very promising young naturalist, who perished whilst pursuing his studies at Surinam, whither he was sent by the illustrious Boerhaave.

SUB-GENUS I.—ODONTITES. *Haller, Pers.*

Capsule ovate or oblong, compressed, obtuse. Seeds minute with longitudinal ridges.

SPECIES I.—BARTSIA ODONTITES. *Huds.*

PLATE DCCCCXCIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXVII.
Billot, Fl. Gall. et Germ. Exsicc. No. 62.
Odontites rubra, *Pers.* *Benth.* in *D. C.* Prod. Vol. X. p. 551. *Fries*, Sum. Veg. Scand. p. 19.
Euphrasia Odontites, *Linn.* *Bab.* Man. Brit. Bot. ed. v. p. 247.

Annual. Stem 4-angled, erect, paniculately branched, with the branches opposite, erect or ascending. Leaves sessile, lanceolate, acute, remotely serrate. Flowers in dense spikelike racemes at the extremity of the stem and branches, subsecund. Peduncles much shorter than the tube of the calyx. Corolla ringent, hairy. Style longer than the upper lip. Capsule oblanceolate-oblong-ovoid, obtuse, apiculate, hairy, equalling or slightly exceeding the calyx. Seeds minute, fusiform-oblong, ribbed, transverse, striate between the ribs.

Var. α, *vulgaris.*

Odontites verna, *Reich.* Fl. Excurs. p. 359.
O. rubra, *Gr. & Godr.* Fl. de Fr. Vol. II. p. 606.
Euphrasia Odontites, *Koch*, Syn. Fl. Germ. et Helv. p. 69.

Branches ascending, nearly straight. Leaves rounded at the base. Bracts usually exceeding the flowers. Calyx green tinged with purple; teeth as long as the tube, triangular-lanceolate.

Var. β, *serotina.*

Odontites serotina, *Reich.* Fl. Excurs. p. 359. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 606.
Odontites verna, var. elegans, *Ball*, in. Ann. Nat. Hist. ser. ii. Vol. IV. p. 29.
Euphrasia serotina, *Lam.* *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 69.

Branches spreading, then curving upwards, flexuous. Leaves attenuated towards the base. Bracts shorter than the flowers. Calyx-teeth as long as the tube, triangular-lanceolate.

Var. γ, *rotundata.*

Odontites rotundata, *Ball* in Ann. Nat. Hist. ser. ii. Vol. IV. p. 30.

"Floral leaves [bracts] equalling or shorter than the flowers. Segments of the calyx one-third of its length, broadly-triangular. Corolla rather shorter than in O. verna; upper lip broad, convex, including the anthers; lower lip with three broadly-rounded nearly equal segments. . . . Capsule broadly-oval, when ripe longer than the calyx."—(Ball, *l. c.*)

Var. α in cornfields; rather common, especially in the South. Var. β by roadsides, in pastures, open woods, &c.; very common, and generally distributed. Var. γ, Bepton Common, Sussex (Miss Plowden); and Cambridgeshire,—Collector unknown (J. Ball, *l.c.*).

England, Scotland, Ireland. Annual. Late Summer and Autumn.

Stem erect, wiry, hairy with recurved hairs, 3 inches to 2 feet high, generally with numerous opposite branches, except in small specimens. Leaves ½ to 1½ inch long, remotely serrated or crenate-serrate, with shallow teeth, scabrous above, with short stiff hairs rising from the protuberances, reticulated beneath, with the hairs most numerous and strongest on the midrib. Racemes very dense in flower, elongating in fruit; lowest bracts usually opposite and like the leaves, the others alternate and narrower. Calyx tubular, reddish, hairy. Corolla ½ inch long, dull-pink, twice as long as the calyx; tube glabrous, the limb pubescent; upper lip longest, densely bearded towards the apex, concave, entire, slightly notched; lower lip shorter than the upper, with 3 entire oblong lobes, the middle one the longest. Anther-cells sub-exserted, with very short awns, equal in all the cells. Capsule about ¼ inch long, slightly compressed, with an impressed line at the junction of the carpels. Seeds minute, pale, with acute raised longitudinal ridges and close transverse lines between them. Plant dull-green, pubescent with short rigid hairs.

Var. β seems to have little claim to be considered a distinct species, as most continental botanists regard it. Boreau gives the time of flowering of O. verna, May to July, and of O. serotina, August to October; the British var. verna commences flowering in the end of June, and var. serotina in July.

Mr. J. Ball's var. elegans, which has occurred at Wyndcliff, Chepstow, appears from his description to belong to var. serotina.

With var. γ I am quite unacquainted. Professor Babington has not met with it in Cambridgeshire, whence Mr. Ball obtained the specimen on which he founded his O. rotundata.

Red Bartsia.

French, *Bartsie Rouge.* German, *Rothblütiger Augentrost.*

SUB-GENUS II.—EUPHRAGIA. *Griesb.*

Capsule oblong, scarcely compressed, pointed. Seeds very minute, crenately ribbed. Hilum basal.

SPECIES II.—BARTSIA VISCOSA. *Linn.*

PLATE DCCCCXCIV

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXVI.
Billot, Fl. Gall. et Germ. Exsicc. No. 1739.
Euphragia viscosa, *Benth.* in *D. C.* Prod. Vol. X. p. 543. *Bab.* Man. Brit. Bot. ed. v. p. 246. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 611. *Reich. fil.* l. c. p. 54.
Trixago viscosa, *Reich.* Fl. Excurs. p. 360.

Annual. Stem round, erect, simple, rarely slightly branched in the lower half. Leaves sessile, oblong-lanceolate or oval-lanceolate, acute, remotely and coarsely serrate throughout. Flowers in a rather lax spike or spike-like raceme, not secund. Pedicels much shorter than the tube of the calyx. Corolla ringent, hairy with gland-tipped hairs. Style scarcely exceeding the upper lip of the corolla. Capsule elliptical-ovoid, subacute, apiculate, hairy, a little shorter than the calyx. Seeds very minute, very finely reticulated. Plant pubescent, with the hairs on the stem, calyx, and corolla gland-tipped.

In moist meadows and in marshes. Not uncommon in the South and West of England, extending from Sussex, Hants, Dorset, and Cornwall, North to Dumbarton, Renfrew, and Argyle; also in the South-west of Ireland.

England, Scotland, Ireland. Annual. Summer and Autumn.

Stem wiry, 3 to 18 inches high, sometimes with a few branches towards the base, but more generally simple. Leaves $\frac{1}{2}$ to $1\frac{1}{2}$ inch long, scabrous above with raised points, from which hairs are produced, reticulated below as in B. Odontites, but more coarsely serrated and broader than in that species. Calyx-tube yellowish-white towards the base; teeth green. Flowers $\frac{3}{4}$ inch long, pale-yellow. Capsule $\frac{3}{8}$ to $\frac{5}{12}$ inch long, slightly exceeding the calyx-tube, but shorter than the segments. Plant yellowish-green, the stem, under side of the leaves, pedicels, and calyx-tube clothed with short gland-tipped hairs, the upper side and margins of the leaves with short stiff hairs without glands at the tip.

Yellow Bartsia.

French, *Bartsie Visqueuse.* German, *Gelbblättriger Augentrost.*

SUB-GENUS III.—EU-BARTSIA. (BARTSIA, *Stev.*)

Capsule ovate-oblong, not compressed, pointed. Seeds large, with the ribs on the back winged. Hilum lateral.

SPECIES III.—**BARTSIA ALPINA.** *Linn.*

PLATE DCCCCXCV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXV. Figs. 1, 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 602.

Perennial. Rootstock shortly creeping, almost woody, producing one or more stems. Stem erect, simple, 4-sided, frequently decumbent at the base. Leaves sessile, often semi-amplexicaul, ovate, obtuse, crenate or serrate-crenate. Flowers in a dense head-like or spikelike raceme at the extremity of the stem, not secund. Pedicels much shorter than the tube of the calyx. Corolla ringent, hairy with short gland-tipped hairs. Style slightly exceeding the upper lip of the corolla. Capsule ovate-ovoid, acuminated, hairy, longer than the calyx. Seeds with several membranous wings on the back. Plant pubescent, with jointed glandular hairs, those on the stem-florets and calyx mostly gland-tipped.

In damp grassy places and ledges of rocks, by the sides of streams in mountainous districts. Rare. In Teesdale, on the plateau of Cronkley Fell, and by the streamside at Upper Cronkley and Winch Bridge, in the counties of Durham and York, and near Malham Tarn, Craven, in the latter county; said also to have been found near Orton, Westmoreland. I have collected it in two places in the Breadalbane Mountains; viz., the eastern slope of Ben Lawers, and by the side of a stream in the Glen Lochy Mountains, a little to the east of Maol Oufillach. It is reported to have been found on Maol Ghyrdy by Dickson, in Inverness by Boué, and Ross by the Rev. G. Gordon.

England, Scotland. Perennial. Late Summer.

Stems 3 to 9 inches high. Leaves ½ to 1 inch long, not scabrous above, nor reticulated beneath, as in the two preceding species. Floral leaves or bracts similar to the others, but usually tinged with dull-purple. Flowers few, generally all collected at the top of the stem at the time of flowering. Calyx dull-purple. Corolla ¾ inch long, dull maroon-purple, the white hairs on the anthers, which just appear beyond the apex, showing a striking contrast with the dark colour of the corolla. Seeds rather large, remarkable for the numerous parallel wings on the back. Plant dull-green, glandular-pubescent, the hairs on the stem, bracts, calyx, and corolla, gland-tipped.

Alpine Bartsia.

French, *Bartsie des Alpes.* German, *Gebirgs Bartschia.*

GENUS XII.—PEDICULARIS. *Tournef.*

Calyx tubular-bellshaped, inflated and bladdery after flowering, with 2 to 5 irregular teeth or lobes, or bilabiate with the upper lip entire or 2-toothed, the lower 3-toothed. Corolla tubular, bilabiate; upper lip helmet-shaped, much compressed laterally, entire or 2-toothed, or produced into a beak at the apex; lower lip with the lobes sub-erect or spreading, the central lobe commonly smaller than the others. Stamens 4, didynamous, placed under the upper lip of the corolla; anthers 2-celled, the lobes not mucronate, except in a single species. Capsule ovoid or lanceolate, laterally compressed, generally falcate or oblique, loculicidally dehiscing by 2 valves. Seeds rather few, large, ovoid-subtrigonous.

Herbs, with the leaves alternate or verticillate, rarely opposite, generally pinnate or pinnatifid. Flowers in spikes, or more rarely racemes, red or yellow.

The name of this genus of plants is derived from *pediculus*, a louse, on account of its being supposed to produce such vermin in sheep.

SPECIES I.—PEDICULARIS PALUSTRIS. *Linn.*

PLATE DCCCCXCVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCLIX. Figs. 2, 3; MDCCCXXIV. Figs. 19—24.
Billot, Fl. Gall. et Germ. Exsicc. No. 431.

Stem erect, solitary, usually paniculately branched throughout. Leaves alternate or sub-opposite, pinnatipartite, with the segments pinnatifid or bi-pinnatifid, the ultimate segments blunt. Flowers in lax spikelike racemes. Calyx in fruit ovate-ovoid, hispid, with 2 lateral lobes, which are again unequally crenate-lobed, crimped and glabrous at the margins and along the sinus. Upper lip of corolla not rostrate, with the margin on each side furnished with a triangular-subulate tooth immediately below the apex, and another blunt tooth about the middle. Capsule ovate-ovoid, curved nearly regularly above from the base to the apex of the beak, which is on a continuation of the middle line oi the capsule.

In bogs and marshes. Rather common, and generally distributed. Plentiful in the North.

England, Scotland, Ireland. Biennial. Spring to Autumn.

Stem rather stout, 3 inches to 2 feet high, usually much branched. Leaves 1 to 4 inches long, finely divided, somewhat resembling those of some of the ferns, such as Cystopteris. Pedicels much shorter than the calyx-tube. Calyx at first oblong-cylindrical, afterwards inflated and bladdery, stained with dull-purple. Corolla 1 inch long, rather more than twice as long as the calyx, dull purplish-pink; the upper lip much compressed, and dark brownish-purple at the apex. Capsule longer than the calyx, about ½ inch. Plant dull-green, often stained with lurid-purple, nearly glabrous, with a few scattered hairs on the stem, rachis, and towards the bases of the leaves, the calyx with scattered jointed hairs.

Upright Lousewort.

French, *Pédiculaire des Marais.* German, *Sumpf-Läusekraut, Moorkönig.*

The species of this genus have not a good reputation among farmers; and it is said that sheep eating any of them are shortly affected with disease, and covered with vermin. This may arise from the fact that no animal will eat them when other food is attainable; and they grow in marshy ground, and situations very unfavourable to the health of animals, and likely to occasion and account for disease without the diet so condemned.

SPECIES II.—**PEDICULARIS SYLVATICA.** *Linn.*

PLATE DCCCCXCVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXLIX. Fig. 1; MDCCCXXVI. Figs. 3, 4, 5, and 12—18.
Billot, Fl. Gall. et Germ. Exsicc. No. 1736.

Stems numerous from the crown of the rootstock, decumbent, simple, the central stem reduced to a raceme, the lateral ones elongated. Leaves alternate, pinnatipartite, with the segments pinnatifid, and the ultimate segments subacute. Flowers in lax spikelike racemes. Calyx in fruit oval-ovoid, glabrous, cut into 5 lobes divided like the segments of the leaves, and except the upper one, which is smaller and entire, crimped and ciliated with short woolly hairs in the sinus between the lobes. Upper lip of corolla not rostrate, with the margin on each side furnished with a triangular tooth immediately below the apex, but without any tooth below the middle. Capsule oval-ovoid, abruptly rounded above at the apex, the beak forming a continuation of the lower side.

On wet heaths and damp pastures and thickets. Common, and generally distributed.

England, Scotland, Ireland. Biennial or perennial?
Spring to Autumn.

Stems numerous, spreading, 2 to 9 inches long, the central stem with flowers nearly to the base. Leaves similar to those of P. palustris, but less narrowed towards the apex, and with the segments usually more deeply and acutely lobed. Flowers 1 to $1\frac{1}{4}$ inch long, pale-rose, without the brownish shade on the upper lip which is present in P. palustris. Calyx without hairs, except along the margins of the sinus between the segments. Capsule $\frac{1}{2}$ inch long, about equalling the calyx. Plant dull-green.

Procumbent Lousewort.

French, *Pédiculaire des Forêts.* German, *Wald Läusekraut*

The expressed juice of this plant has been employed as a remedy in some diseases, chiefly as an injection in case of ulcers.

GENUS XIII.—**RHINANTHUS.** *Linn.*

Calyx urceolate, laterally compressed, much inflated and bladdery even during flowering, 4-toothed. Corolla tubular, bilabiate ; upper lip helmet-shaped, much compressed laterally, entire, or with 2 small teeth or lobes at the apex ; lower lip 3-lobed, the lobes sub-erect. Stamens 4, didynamous, placed under the upper lip of the corolla ; anthers 2-celled, with the lobes not mucronate. Capsule sub-orbicular, much compressed laterally, loculicidally dehiscing by 2 valves. Seeds rather few, large, sub-orbicular, and much compressed.

Erect annuals with opposite leaves, and large axillary yellow flowers arranged in terminal spikes.

The derivation of the name of this genus is from ριν (*rin*), the nose, and ανθος (*anthos*), a flower ; in allusion to the form of the blossom, which is spurred.

SPECIES I.—**RHINANTHUS CRISTA-GALLI.** *Linn.*

PLATES DCCCCXCVIII. DCCCCXCIX.

Calyx ventricose, compressed, 4-toothed. Corolla with the upper lip short, semicircular, compressed, not produced into a beak.

SUB-SPECIES I.—**Rhinanthus minor.** *Ehrh.*

PLATE DCCCCXCVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXXVIII.

Billot, Fl. Gall. et Germ. Exsicc. No. 1288.

R. Crista-galli, *Sm.* Eng. Bot. No. 657. *Bab.* Man. Brit. Bot. ed. v. p. 245. *Hook. & Arn.* Brit. Fl. ed. viii. p. 310.

Alectorolophus minor, *Reich.* Fl. Excurs. p. 358. *Reich. fil.* l. c.

A. parviflorus, *Wallroth,* Sched. Crit. p. 318.

Stem simple or slightly branched. Bracts wholly green. Calyx glabrous. Corolla-tube not longer than the calyx-segments ; lobes of the upper lip not longer than broad ; lower lip as long as the upper. Seeds with a broad membranous border.

In meadows and damp pastures and marshes. Very common, and generally distributed.

England, Scotland, Ireland. Annual. Summer.

Stem erect, wiry, 4-sided, 3 to 20 inches high, simple in small, or with a few branches in large specimens. Leaves opposite, 1 to 2 inches long, sessile, oblong-lanceolate or oblong-strapshaped, subcordate at the base ; margins slightly incurved, deeply serrated ; upper surface scabrous, glabrous or finely bristly hairy ; under surface reticulated. Flowers in the axils of opposite leaflike bracts, which are longer than the calyx, arranged in a spikelike raceme. Calyx $\frac{1}{2}$ to $\frac{3}{4}$ inch long when in fruit, bladdery, reticulate-veined, roundish-deltoid, much compressed, with 4 nearly equal teeth, the 2 upper ones divided much more deeply than the others. Corolla $\frac{1}{2}$ to 1 inch long, bright-yellow with the tube paler, the limb puberulent, yellow ; the upper lip with 2 small bright-blue glabrous lobes. Capsule orbicular, compressed so as to be flat, shorter than the calyx, $\frac{3}{8}$ to $\frac{1}{2}$ inch long. Seeds roundish oval, $\frac{1}{5}$ inch across, of which the border is nearly $\frac{1}{16}$ inch, shining and marked with radiating lines. Plant bright-green, glabrous, or with the upper side of the leaves pubescent.

Common Yellow-Rattle.

French, *Rhinanthe à Petites Fleurs.* German, *Kleine Klapper*

This plant is sometimes called Pennyweed, though its usual name of Rattle is more familiar, and is given to it from the noise the ripe seeds make in their pods.

SUB-SPECIES II.—**Rhinanthus major.** *Ehrh.*

PLATE DCCCCXCIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXXIX. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 1289.
R. major, *a* glabra, *F. Schultz.* *Gr. & Godr.* Fl. de Fr. Vol. II. p. 612.
R. angustifolius, *Gmel.* *Benth.* in *D. C.* Prod. Vol. X. p. 558. *Hook. & Arn.* Brit. Fl ed. viii. p. 310.
Alectorolophus major, var. *c* glabra, *Reich. fil.* l. c. p. 66.
A. grandiflorus, var. *a* glabratus, *Wallroth,* Sched. Crit. p. 316.

Stem usually copiously paniculately-branched. Bracts yellow at the base, with pale-green points. Calyx glabrous. Corolla-tube longer than the calyx-segments ; lobes of the upper lip longer than broad ; lower lip shorter than the upper. Seeds generally with a broad membranous border, rarely nearly apterous.

Var. α, *alatus.*

Seeds with a broad membranous border.

Var. β, *apterus.* Fries.

"R. Reichenbachii, *Drejer*," Il. Excurs. Hafniens. p. 210, *Reich.*

"Seeds not winged, but rounded and longitudinally ribbed or furrowed on the back."—(*Bab.*)

In cultivated ground. Rare. Near Hastings, Sussex; Gloucester, Stafford, Notts, York, Durham, Northumberland; Lake district, Berwick, Forfar, Moray; also reported from Shetland, but this requires confirmation. Var. β "Forfarshire" (*Bab.*).

England, Scotland. Annual. Late Summer
and Autumn.

Extremely like R. minor, but usually a taller and much more branched plant, of a paler green colour, especially on the bracts; the flowers larger; the lobes of the upper lip more prominent.

The variety without winged seeds I have not seen; the only place in Forfarshire where I have collected R. major is between Carnoustie and Easthaven, where it is plentiful; but in all the numerous specimens I examined in that locality, the border of the seeds was conspicuous. I am also unable to see any difference in the breadth of the seed-border in the specimens from Hastings and those from Yorkshire, though Professor Babington follows Fries in making two varieties of winged-seeded forms:—

1st. Platypterus. Seed not twice as broad as its wing.

2nd. Stenopterus. Seed twice as broad as its wing; and in the "Manual," Hastings is given as the station for the first, and North of England and Scotland for the second.

Larger Yellow-Rattle.

French, *Rhinanthe à Grandes Fleurs.* German, *Grössere Klapper.*

This plant is more commonly known as Crista Galli, from its supposed likeness to a cock's comb or crest.

GENUS XIV.—MELAMPYRUM. *Tournef.*

Calyx tubular-bellshaped, sub-bilabiate, 4-toothed, the lower teeth usually the largest. Corolla tubular, bilabiate, with the tube elongated and enlarged upwards; the upper lip helmet-shaped, compressed, entire or 2-toothed at the apex, with the margins narrowly reflexed; lower lip a little longer, sub-erect, shortly 3-lobed; palate with 2 elevated bosses. Stamens 4, didynamous, placed under the upper lip of the corolla; anthers

2-celled, the lobes mucronate. Capsule ovoid-conical, laterally compressed, falcate or oblique, loculicidally dehiscing by 2 valves. Seeds large, ovoid-trigonous, 1 or 2 in each cell.

Annuals, with branched stems and opposite leaves; the flowers rose-coloured and yellow, and in spikes; or in distant pairs and yellow or variegated with rose or violet; the bracts not unfrequently coloured.

The name of this genus of plants comes from μελας (*melas*), black, and πυρος (*puros*), wheat, as it communicates a greyish colour when mixed with wheat-flour.

SPECIES I.—MELAMPYRUM CRISTATUM. *Linn.*

PLATE M.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXXVII.
Billot, Fl. Gall. et Germ. Exsicc. No. 601.

Bracts coloured, ovate, acuminated, folded in two and recurved; the lower ones with a leaflike point, all somewhat cordate, pectinated with spreading slender ciliated teeth at the margins; point entire and herbaceous. Flowers horizontal, in a densely imbricated 4-sided spike with excavated faces. Calyx sub-glabrous; teeth ciliated, unequal; the upper ones longly awned, with a hairy midrib; the lower ones half as long as the upper. Tube of the corolla bent about the middle, more than twice as long as the longest calyx-teeth, and more than five times as long as the lips. Capsule with a semicircular profile.

Very local. In woods, thickets, hedges, or rarely cornfields. Plentiful in the North-west of Essex, especially near Saffron Walden; also in the counties of Cambridge, Hants, Hunts, Herts, Beds, Norfolk, Suffolk.

England. Annual. Late Summer.

Stem 6 inches to 2 feet high, erect, wiry, 4-sided, puberulent, with opposite branches. Leaves strapshaped or lanceolate-strapshaped, acuminate, 1 to 4 inches long. Spikes tetraquetrous, terminating the stem and branches, those of the latter smaller, the principal one 1 to 2 inches long. Bracts densely imbricated, purplish-rose fading to green, cut at the base into slender acute often bifid teeth. Flowers puberulent, sessile, solitary in the axils of the bracts, about $\frac{5}{8}$ inch long, pale-yellow stained with purple-rose towards the apex; the inside of the lips purple, the palate yellow, the whole corolla at length changing to purplish-rose. Capsule $\frac{1}{4}$ inch long, exceeding the calyx, much compressed, with two large seeds in each cell. Plant sub-glabrous, with the stem, upper side of the leaves, and veins beneath puberulent.

I am indebted to Mr. G. S. Gibson for fresh specimens from Saffron Walden.

Crested Cow-wheat

French, *Mélampyre à Crêtes.* German, *Kammähriger Wachtelweizen.*

SPECIES II.—**MELAMPYRUM ARVENSE.** *Linn.*

PLATE MI

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCXXXVI. Fig. 1.
Billot, Fl. Gall. et Germ. Exsicc. No. 1286.

Bracts coloured, rhomboidal-ovate, subacute, flat, adpressed, all (except the lowest) wedgeshaped at the base, where they are lacerate, with long slender ascending teeth, which are not ciliated; uppermost ones nearly entire or with broad teeth. Flowers erect, in a rather dense sub-cylindrical spike. Calyx puberulent; teeth subulate, ciliated, nearly equal. Tube of the corolla bent about the middle, only slightly exceeding the calyx-teeth, and scarcely four times as long as the lips. Capsule with a broadly-oval profile, with the upper and under sides with nearly equal curvature.

In cornfields. Very local. Common near St. Lawrence, in the Isle of Wight. It also occurs in Norfolk, in Essex, and in Herts.

England. Annual. Late Summer and Autumn.

Stem wiry, flexuous, 8 inches to 2 feet high, bluntly quadrangular, puberulent. Leaves lanceolate or strapshaped-lanceolate, $1\frac{1}{2}$ to 3 inches long, bristly puberulent above; all entire, except a few of the upper ones, which have 1 or 2 teeth near the base. Spikes indistinctly 4-sided. Lowest bracts usually a little remote from the others, and leaflike, the rest purplish-rose changing to green. Flowers puberulent, $\frac{7}{8}$ inch long, with the tube rose-colour, the throat with a bright yellow patch, the lips closed, dark-rose. Capsule $\frac{1}{2}$ inch long, shorter than the calyx. Seeds generally 1 in each cell, much the size and colour of grains of wheat. Plant light-green, scabrous with minute hairs.

Field Cow-wheat.

French, *Mélampyre des Champs.* German, *Feld Wachtelweizen.*

SPECIES III.—**MELAMPYRUM PRATENSE.** *Linn.*

PLATES MII. MIII. MIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXXIII
Billot, Fl. Gall. et Germ. Exsicc. No. 61.

Bracts green, lanceolate or ovate, acute, flat, spreading, shortly stalked, truncate or rounded and often sub-hastate at the base · the lower ones usually with a few large slender spreading ciliated teeth. Flowers horizontal, secund, in a very lax spikelike raceme. Calyx glabrous or puberulent; teeth strapshaped, lanceolate, and ciliated, nearly equal, all bent upwards. Tube of the corolla nearly straight, more than twice as long as the calyx-teeth, and more than four times as long as the lips. Capsule with an ovate profile, more curved on the upper side than on the under.

Var. α, *latifolium.*

PLATE MII.

Leaves ovate, all acute. Bracts strongly toothed, all except the lowest ones with short points.

Var. β, *vulgaris.*

PLATE MIII.

Leaves strapshaped, lanceolate, all acute. Bracts strongly toothed, most of them with long entire points.

Var. γ, *montanum.*

PLATE MIV.

M. montanum, *Johnst.* Fl. Berwick-on-Tweed.

Leaves strapshaped, lanceolate, acute, the lower ones generally oblanceolate and obtuse. Bracts entire or nearly so, all with long slender points.

Var. α, rare. Principally in bushy places, on chalk or limestone. On the ridge of the hill between Goring and Whitechurch, Oxfordshire (Prof. Babington); banks of the Wye below Monmouth (Mr. Wardale); Isle of Wight (Dr. Bromfield). Var. β, in open woods and copses. Common, and generally distributed, but becoming rare in the North of Scotland. Var. γ, on heaths and pastures. Common in mountainous districts, abundant in Scotland, and reaching North to Orkney.

England, Scotland, Ireland. Annual. Var. α and β, Summer.
Var. γ, late Summer and Autumn.

A variable plant. Stems erect, wiry, flexuous, 1 to 2 feet high in vars. α and β, 2 to 12 inches in var. γ. Branches numerous, spreading; lowest bracts usually exactly similar to the leaves, and distant. Flowers $\frac{1}{2}$ to $\frac{3}{4}$ inch long, pale-yellow; the tube often nearly white, especially in var. γ; the palate orange, and raised so as to close the mouth of the corolla. Capsule longer than the calyx-teeth, $\frac{3}{8}$ inch long, compressed, at length reflexed, generally with

2 seeds. Plant glabrous or slightly puberulent; the margins of the leaves, bracts, and sepals finely ciliated.

Common Cow-wheat.

French, *Mélampyre des Prés.* German, *Weisen Wachtelweizen.*

This species is valuable as a food for cattle, though never cultivated in this country for that purpose. Its common name, according to Dr. Prior, comes from the fact that "its seed resembles wheat, but is only fit tor cows." Linnæus says that when cows are fed in fields where the Cow-wheat is abundant, the butter yielded by their milk is peculiarly rich, and of a brilliant yellow colour. There appears to have been an ancient notion among the peasantry that the small seeds were capable of being converted into wheat as they fell; so sudden a transformation, however, would puzzle even Mr. Darwin to credit or to account for.

SPECIES IV.—**MELAMPYRUM SYLVATICUM.** *Linn.*

PLATE MV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXXXIV. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 1287.

Bracts green, lanceolate, acute, flat, ascending, shortly stalked, rounded at the base, without teeth, finely ciliated. Flowers sub-erect, in a very lax spikelike raceme. Calyx glabrous; teeth lanceolate, ciliated, nearly equal, all spreading. Tube of the corolla arched towards the apex, scarcely exceeding the calyx-teeth, three times as long as the open lips. Capsule rather longer than the calyx, with an ovate profile, the curvature on the upper and under sides nearly equal.

In woods in mountainous districts. Rare. In the North of England and Scotland; but small specimens of M. pratense have been so often mistaken for M. sylvaticum that it is difficult to fix the precise distribution. Perthshire and Aberdeenshire are the only two counties in which I have gathered it; but I have seen specimens from Yorkshire, Dumbartonshire, and Forfarshire, and Mr. H. C. Watson has specimens from Durham and Moray. According to the "Cybele Hibernica," it occurs in the North-east of Ireland.

England, Scotland, Ireland. Annual. Late Summer and Autumn.

Extremely like small specimens of M. pratense, but more slender, with the branches less spreading and less flexuous, 6 to 15 inches high; the leaves less spreading, more attenuated towards the base; the bracts always without teeth; the flowers more remote, much smaller, $\frac{1}{2}$ to $\frac{3}{8}$ inch long; the corolla bright orange-yellow; the tube curved, enlarged upwards, shorter in proportion to the calyx and lips of the corolla; the throat open; the capsule not reflexed, rather smaller; the calyx-teeth broader and spreading, not all bent upwards as in M. pratense.

Wood Cow-wheat.

EXCLUDED SPECIES.

VERBASCUM THAPSIFORME. *Schrad.*

Introduced into the British lists by a mistake of Dr. Lindley, who supposed Hudson's V. thapsoides to be this species instead of the hybrid between V. Lychnitis and V. Thapsus. Hudson especially distinguishes his V. thapsoides from V. Thapsus by its branched stem, while the stem of V. thapsiforme is no more branched than that of V. Thapsus.

An anonymous writer in the second series of the "Phytologist" announces the discovery of S. thapsiforme near Ashford, Kent. Whether this species grows there or not cannot be decided until some competent botanist discovers the alleged station. In the Phyt. ser. ii. 1861, p. 364, it is mentioned that Mr. Atwood, of Rouen, sent seeds of V. thapsiforme a few years before the date of the article announcing the discovery of the plant near Ashford, and that the seeds "were distributed among several botanists and cultivators."

VERBASCUM PHLOMOIDES. *Linn.*

A few plants occurred on Clapham Common, Surrey; no doubt sown intentionally or accidentally; it has also occurred in Sussex.

VERBASCUM PHŒNICEUM. *Linn.*

"In a scattered fence on the right hand from Beaumaris to the Almshouses, 1803. In the following year it nearly covered acres of ground in the adjoining field."—(Davies, Welsh Botanology, p. 23.) Not found recently.

LINARIA SPARTEA. *Hoffm.*

"Occurred during some few successive years on sandy ground enclosed for cultivation from Walton Heath, close by the Walton station of the South-Western Railway. It might possibly be L.

juncea or L. Löselii."—(Cybele Brit. Vol. II. p. 221.) Not now to be found there.

MIMULUS GUTTATUS. *D.C.*

Said by Dr. Walker-Arnot to be "naturalized in many boggy places." I have never seen a British specimen.

VERONICA FRUTICULOSA. *Linn.*

Eng. Bot. ed. i. No. 1028.

Said to have been found in Ben Cruachan by Rev. Dr. Walker and on Ben Lomond by Dr. Robert Brown. No doubt a mistake. V. saxatilis only occurs on the latter hill.

ORDER LI.—OROBANCHACEÆ.

Fleshy herbs, destitute of green leaves, parasitical on the roots of other plants; the stem white, purple, brown, yellow, red, or dull-blue, with distant scales. Flowers irregular, in the axil of bracts similar to the scales upon the stem, arranged in spikelike racemes, or rarely solitary and terminal. Calyx free from the ovary, persistent, of 4 or 5 sepals, unequally combined in various modes, often split along the top completely to the base, and frequently along the bottom so as apparently to consist of 2 entire or cleft sepals. Corolla tubular or tubular-campanulate, generally curved, the limb 2-lipped, the upper lip commonly 2-lobed, and the lower 3. Stamens 4, didynamous, inserted in the tube of the corolla. Ovary 1-celled, with 2 to 4 parietal placentæ; style single, curved at the apex; stigma bilobed, the lobes right and left. Ovules numerous. Fruit a 1-celled capsule, opening by 2 valves, each valve bearing upon its face a single placenta or a pair. Seeds generally very numerous, with a minute embryo enclosed in transparent white albumen.

GENUS I.—LATHRÆA. *Linn.*

Flowers all perfect. Calyx inflated-campanulate, 4-toothed. Corolla irregular, marcescent; tube bellshaped cylindrical slightly arched; limb bilabiate and ringent; the upper lip concave, entire; the lower one smaller, erect, spreading, 3-lobed. Stamens

4, didynamous, inserted in the tube of the corolla, sub-exserted; filaments flattened at the base; anthers 2-celled, the cells divaricate at the base, mucronate. Style simple, curved at the apex; stigma bi-globular. Capsule ovoid-conical, 1-celled, 2-valved at the apex, with 4 broad or 2 rather narrow placentæ, with 4 or 5 or numerous seeds.

Glabrous fleshy herbs with subterranean stems, parasitical on the roots of various dicotyledonous plants.

The name of this genus of plants is derived from the Greek word λαθραιος (*lathraios*), secret; descriptive of the shady recesses in which only it is found.

SPECIES I.—**LATHRÆA SQUAMARIA.** *Linn.*

PLATE MVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCLXIX.
Billot, Fl. Gall. et Germ. Exsicc. No. 430.

Flowers numerous, drooping, arranged in 2 rows in a secund spikelike raceme. Seeds rather numerous, affixed to 4 broad placentæ approximating in pairs.

Parasitical on the roots of trees, especially hazel, in damp shady places. Rather rare. Besides the hazel, it grows on the oak, beech, ash, elm, walnut, ivy, vine, and laurel.

England, Scotland, Ireland. Perennial. Spring and early Summer.

Rootstock branched, giving off slender fibres which attach themselves by minute tubercles to the roots of the plant on which it is parasitic. Whole plant white, with a somewhat translucent appearance, frequently tinged with purple, clothed below with thick fleshy brittle scales. Branches short, thick, cylindrical, conical at the apex, with scales like the rootstock. Flowering-stem erect, fleshy, 3 inches to 1 foot high, white and glabrous at the base, tinged with purple or rose, and slightly pubescent towards the top, with a few scales in the lower part, terminated by a dense unilateral raceme, at first bent over like that of Monotropa, but straightening as the flowers expand. Flowers white, more or less tinged with purplish-pink, drooping or horizontal, each with a broadly ovate bract set obliquely on the stem at the base of the pedicel. Pedicels shorter than the calyx, clothed with jointed hairs. Calyx bilabiate, somewhat inflated, each lip cleft into 2 deltoid connivent segments, clothed with a few hairs. Corolla longer than the calyx; upper lip entire or slightly notched, concave; lower lip 3-lobed, with the lobes crimped at the margins; filaments hairy. Anthers cohering, fringed with woolly hairs. Style generally exserted, glabrous ; stigma 2-lobed, purple. Capsule ovate, acuminate, compressed. Plant brittle, fleshy, nearly glabrous.

Toothwort

French, *Clandestine Écailleuse.* German, *Gemeine Schuppenwurz.*

The common name of this plant was given to it from a supposed resemblance of the scaly roots to a human tooth.

GENUS II.—**OROBANCHE.** *Linn.*

Calyx of 2 entire or cleft sepals more or less connected below, or irregularly 5-partite or toothed. Corolla irregular, marcescent, at length splitting circumscissily and sub-deciduous ; tube cylindrical or bellshaped, generally arched ; limb bilabiate and ringent ; the upper lip erect, 2-lobed or 2-cleft ; the lower one spreading, 3-cleft. Stamens 4, didynamous, inserted in the tube of the corolla, included ; filaments flattened at the base ; anthers 2-celled, the cells divaricate at the base, mucronate. Style simple, curved at the apex ; stigma bi-globular, the lobes right and left. Capsule ovoid-conical, 1-celled, more or less distinctly 2-valved, with 4 narrow placentæ approximating in pairs on each valve. Seeds very numerous, minute, with a spongy testa.

Glandular-hairy fleshy herbs without green leaves, parasitical on the roots of various dicotyledonous plants ; the base of the stem (which is often swollen) directly attached to the roots of the plant on which it is parasitic

The name of this genus of plants comes from *οροβος* (*orobos*), pulse, and *αγχειν* (*anchein*), to strangle, owing to its supposed power of destroying the plant on which it grows.

SUB-GENUS I.—PHELIPÆA. *Tournef.* *C. A. Mey.*

Flowers each with 3 bracts, 1 beneath and 1 on each side. Calyx of 4 lobes united at the base, or united except along the top, rarely of 5 lobes. Stem slightly branched or simple.

SPECIES I.—**OROBANCHE RAMOSA.** *Linn.*

PLATE MVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCLXXIII.

Billot, Fl. Gall. et Germ. Exsicc. No. 60.

Phelipæa ramosa, *C. A. Mey.* *Reuter,* in *D. C.* Prod. Vol. XI. p. 8. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 627. *Reich. fil.* l. c. p. 88.

Stem branched, rarely single. Flowers ascending, in a rather lax spike. Lowest bract of each flower ovate-lanceolate, shorter than the calyx ; lateral ones smaller, lanceolate-subulate. Calyx divided to the middle into 4 broadly lanceolate segments acuminated into subulate points, shorter than the tube of the corolla, each segment with a strong mid-vein and 1 or more pairs of indistinct lateral veins. Corolla twice as long as the calyx, with the tube curved in the upper half, contracted above the base a little below the termination of the calyx-segments, then again expanded ; upper lip bilobed, with the lobes rounded ; under lip 3-lobed, with the lobes oval, obtuse. Stamens inserted a little below the contraction in the corolla-tube ; filaments pubescent at the base ; anthers glabrous, or nearly so, at the sutures. Stigma "white or slightly bluish" (Coss. & Germ.).

Parasitical on the roots of hemp, and occasionally other plants, such as sunflower, knotgrass, tomata, archangelica, and tobacco, &c. Very rare, and not, strictly speaking, even naturalized in Britain. It has occurred principally in Norfolk, Suffolk, and Cambridge. It has not been found recently.

I have not seen living specimens of this species.

[England.] Annual. Summer and Autumn.

Stem slender, 3 inches to 1 foot high, generally with a few branches towards the base, rarely simple, whitish or tinged with blue, nearly destitute of scales, except where the branches are given off. Flowers $\frac{1}{2}$ to $\frac{5}{8}$ inch long, "yellowish-white commonly tinged with blue on the upper part" (Coss. & Germ.). Plant glandular pubescent, especially above.

Branched Broom-rape.

French, *Orobanche Rameuse.* German, *Astiger Sommerwurz.*

The different species of Broom-rape are probably much alike in quality, and have been given as a remedy in diarrhœa and other disorders. An infusion has been used as a wash for ulcers, but is not now much employed. The habit of these plants is very singular ; they are truly parasitic, and derive no sustenance from the soil. Each species has its favourite plant on which to subsist, and ultimately to kill. The present species attacks the roots of the hemp, and is most destructive to the crops.

SPECIES II.—**OROBANCHE ARENARIA.** *Bork.*

PLATE MVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCLXVI.

Phelipæa arenaria, *Walp.* *Gr.* & *Godr.* Fl. de Fr. Vol. II. p. 625. *Reich. fil.* l. c. p. 86 *Reuter*, in *D. C.* Prod. Vol. XI. p. 6.

Stem simple, very rarely branched. Flowers ascending, in a rather lax spike. Lowest bract of each flower lanceolate, a little longer than the calyx ; lateral ones smaller, lanceolate-subulate. Calyx with 4 lanceolate acuminate segments, shorter than the tube of the corolla ; the upper side generally closed by a small fifth tooth ; each segment with a strong mid-vein. Corolla-tube nearly straight, very slightly curved at the apex, where the tube is much dilated ; upper lip 2-lobed, with the lobes retuse and apiculate ; lower lip 3-lobed, with the lobes oblong, sub-obtuse. Stamens inserted a little below the contraction in the corolla-tube ; filaments sub-glabrous ; anthers hairy at the sutures. " Stigma yellow " (Coss. & Germ.).

Parasitical on Artemisia campestris, on the Continent. On "Achillæa Millefolium ? Alderney " (Bab.).

Channel Islands. Perennial. Summer.

Stem 4 to 16 inches high, white or tinged with blue, very tough and somewhat woody. Flowers 1 to 1¼ inch long, " bluish-violet, veined " (Coss. & Germ.). Capsule ovoid. Plant glandular pubescent.

Of this I have seen only Continental specimens ; and as dried specimens are useless for drawing from, our plate is copied from Reichenbach, Icones Pl. Crit. Vol. VII. Figs. 929, 930.

Sand Broom-rape.

French, *Orobanche des Sables.* German, *Sand Sommerwurz.*

SPECIES III.—OROBANCHE CÆRULEA. *Vill.*

PLATE MIX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCLXX.
Phelipæa cærulea, *C. A. Mey. Reuter*, in *D. C.* Prod. Vol. XI. p. 5. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 624. *Reich fil.* l. c. p. 87.

Stem simple, very rarely branched. Flowers ascending, in a rather dense spike. Lowest bract of each flower lanceolate, a little shorter than the calyx ; lateral ones smaller, lanceolate-subulate. Calyx with 4 lanceolate acuminate segments, shorter than the tube of the corolla ; the upper side generally closed by a small fifth tooth ; each segment with a strong mid-vein. Corolla-tube slightly curved in the apical half, slightly enlarged towards the apex ; upper lip 2-lobed, with the lobes acute ; lower lip 3-lobed, with the lobes ovate, subacute. Stamens inserted a little below the constriction in the corolla-tube; filaments sub-glabrous; anthers not hairy on the sutures. Stigma white.

Parasitical on Achillæa Millefolium. Rare. In Hertfordshire; the Isle of Wight; Penzance, Cornwall; Norfolk; Chepstow, Monmouth. I have collected it only in Jersey, where it is abundant, apparently preferring the tops of walls which have a turf coping.

England. Perennial. Summer.

Stem 6 inches to 1 foot high, tough, with strapshaped lanceolate scales towards the base, which is not conspicuously dilated. Flowers ¾ to 1 inch long, dull bluish-purple with darker stripes; the base of the under lip nearly white. Plant glandular-pubescent, especially in the upper part, with longer hairs on the inside of the lower lip.

O. cærulea comes very near to O. arenaria, but is smaller, with the corolla-tube more curved and less enlarged towards the apex, and the lobes of the lower lip are much more acute; the anthers without a line of hairs at the sutures; the stigma is waxy-white, while in O. arenaria, of which I have not seen fresh specimens, it is said to be yellow or orange.

Purple Broom-rape.

French, *Orobanche Bleue.* German, *Bläuliche Sommerwurz.*

This plant is found chiefly near the sea, and is parasitic on various herbaceous plants.

SUB-GENUS II.—EU-OROBANCHE. (OROBANCHE, *C. A. Meyer.*)

Flowers each with a single bract beneath it, but no lateral ones. Calyx of 2 separate portions, divided from each other to the base on the upper and under side, each portion frequently 2-cleft. Stem unbranched, or only accidentally so.

SPECIES IV.—**OROBANCHE RAPUM.** *Thuill.*

PLATE MX.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCLXXVIII.
O. major, "*Linn.*" *Sm.* Eng. Bot. No. 421. *Hook.* & *Arn.* Brit. Fl. ed. viii. p. 300. *Benth.* Handbook Brit. Fl. p. 386.

Flowers ascending, erect. Bracts more or less exceeding the flowers. Sepals bifid, more rarely entire, about as long as the tube of the corolla; upper segment with a strong mid-vein and an inconspicuous one on each side of it. Corolla pubescent with gland-tipped hairs ; tube wide, sub-campanulate, regularly curved ; the upper lip scarcely notched, with the margins spreading ; the lower 3-lobed, with the middle lobe twice as large as the others ; all the lobes waved, indistinctly denticulate. Stamens inserted at the base of the corolla ; filaments glabrous towards the base, their upper part and the style glandular-pubescent. Stigma of 2 divaricate lobes, pale-yellow.

Parasitic on the roots of furze and broom and other shrubby Leguminiferæ. Rather rare, but generally distributed over England. In Scotland known only to occur in Dumfriesshire. In Ireland it appears to be confined to the South-east of the island.

England, Scotland, Ireland. Perennial. Summer.

Stem very stout, 1 to 2 feet high, enlarged below the ground, clothed with curved glandular hairs. Flowers about 1 inch long, pale-yellow tinged with purple. Bracts variable in length, sometimes considerably exceeding the flowers, at other times only slightly longer. Plant pubescent with gland-tipped hairs, yellowish, often tinged with purple, soon fading to purple.

Greater Broom-rape.

French, *Orobanche du Spartum.* German, *Rübenstengelige Sommerwurz.*

This species infests the rape or turnip plants, and has its peculiar characteristics ; but it is suggested by some writers as possible that the colour and configuration of the parasite are affected by the peculiar sap of the plant on which it feeds ; that the influence of this stolen nourishment is considerable, and that the number of species therefore appears very much larger than it really is.

SPECIES V.—OROBANCHE RUBRA. *Sm.*

PLATE MXI.

Flowers ascending. Bracts shorter than the flowers. Sepals entire, as long as the tube of the corolla or a little longer, with a strong mid-vein, and usually inconspicuous ones on each side of it. Corolla sparingly pubescent with gland-tipped hairs ; tube widely cylindrical, regularly curved ; the upper lip notched, with the margins slightly spreading ; lower lip 3-lobed, with the lobes nearly equal ; all crimped, distinctly denticulate. Stamens inserted near the base of the corolla ; filaments hairy on the inner side towards the base, their apex and upper part of the style sparingly clothed with gland-tipped hairs ; stigma of 2 contiguous lobes, pale-pink.

Parasitical upon wild thyme on trap rocks. Rare. It occurs in the counties of Cornwall, Glamorgan, York, Fife, Argyle, Ross, and in the Isle of Skye ; also in co. Clare, Galway, Donegal, Derry, and Antrim.

England, Scotland, Ireland. Perennial. Summer
and Autumn.

Stem rather stout, 3 to 9 inches high, with numerous scales tinged with purplish-red. Flowers $\frac{5}{8}$ to $\frac{3}{4}$ inch long, more or less tinged with red. Corolla livid-red, smaller and less enlarged upwards than in O. Rapum ; the upper lip with much more distinct and longer lobes and fewer glandular hairs ; the lower lip more distinctly denticulated.

It is probable that O. rubra is identical with O. Epithymum (D.C.), or at the utmost that they are merely distinct as sub-species ; but until the two are examined side by side in a recent state, this question cannot be satisfactorily decided.

I am indebted to Dr. S. Rea of Belfast for fresh specimens from Cave Hill.

Red Broom-rape.

German, *Rötliche Sommerwurz.*

This species infests the roots of broom, and is parasitic on the wild thyme.

SPECIES VI.—OROBANCHE CARYOPHYLLACEA. *Sm.*

PLATE MXII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCLXXXIII. Fig. 1.
Billot. Fl. Gall. et Germ. Exsicc. No. 600.
O. Galii, *Duby. Reuter,* in *D. C.* Prod. Vol. XI. p. 21. *Koch,* Syn. Fl. Germ. et Helv. ed. ii. p. 615. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 631.
O. vulgaris, *D. C.* Fl. Fr. Vol. III. p. 489.

Flowers ascending. Bracts shorter than the flowers. Sepals 2-cleft, shorter than the tube of the corolla ; upper segment with 3 conspicuous veins. Corolla densely pubescent with gland-tipped hairs ; tube widely cylindrical, regularly curved ; upper lip notched, with the margins erect ; lower lip 3-lobed, with the lobes nearly equal ; all crimped and sharply denticulate, those of the lower lip almost fimbriate. Stamens inserted near the base of the corolla ; filaments hairy on the inner side towards the base, their apex and the whole of the style clothed with gland-tipped hairs. Stigma of 2 divaricate lobes, purple.

Parasitical on Galium Mollugo (elatum) and G. verum, Lotus corniculatus and Rubus fruticosus. Very local. Only known to occur in South Kent, principally about Folkestone, as about

Cæsar's Camp Hill, East Wear Bay, and Lyddon Spout; on the undercliff between St. Margaret's Bay and Kingsdown, and on Deal sand-hills.

England. Perennial. Early Summer.

Stem very stout, brittle, enlarged at the base, 6 to 20 inches high, with numerous scales, yellowish or tinged with pale brownish-red. Corolla 1 to 1½ inch long, yellowish or tinged with brownish-purple or brownish-red. The flowers are said to have the scent of cloves (but this I have never been able to perceive); they are less erect, more spreading and narrower in proportion, and less enlarged towards the tube than in O. Rapum, with which it agrees in stature; the bracts are also shorter, very rarely exceeding the flowers.

Clove-scented Broom-rape.

German, *Nelkenduftende Sommerwurz.*

This species occurs on the roots of the bramble.

SPECIES VII.—OROBANCHE ELATIOR. *Sutton.*

PLATE MXIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXCIV.
O. major, "*Linn.*" *Fries,* Sum. Veg. Scand. p. 19; Mant. III. p. 57. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 636.

Flowers ascending-spreading. Bracts shorter than the flowers. Sepals 2-cleft, about as long as the tube of the corolla; upper segment with 3 conspicuous veins. Corolla sparingly pubescent with gland-tipped hairs; tube rather widely cylindrical curved, with the curvature greatest about the middle; upper lip deeply notched, with the margins inflexed-erect; lower lip 3-lobed, with the lobes nearly equal, all crimped and sharply denticulate. Stamens inserted a little above the base of the corolla; filaments hairy on the inner side towards the base, their upper part and the whole of the style sub-glabrous. Stigma of 2 contiguous lobes, yellow.

Parasitical on the roots of Centaurea scabiosa, Scabiosa arvensis, and Carduus lanceolatus? Rare, but widely distributed over England as far North as Yorkshire and Durham, but apparently partial to the East side of the island.

England, Ireland. Perennial. Summer.

Stems 6 to 20 inches high, stout, enlarged at the base, with numerous bracts, yellowish. Flowers ¾ to 1 inch long, pale-yellow, generally tinged with brownish-purple, with the corolla narrower and more curved than in any of the preceding species; the lobes of the upper lip connivent, making the upper lip keeled above so as to form two sides of a triangular prism. The stamens and style nearly glabrous towards the apex, are sufficient to distinguish it from the preceding.

I have been favoured with fresh specimens by Mr. G. S. Gibson, of Saffron Walden.

A plant which has been referred by some to this species, and by others to O. lucorum (Koch), has been found near Epsom, Surrey. Mr. Williamson, of the Royal Gardens, Kew, according to the "Cybele Britannica," gives the following directions for finding the plant:—"From the back of the grand-stand on Epsom race-course, proceed through the fields to the town of Epsom, and the plant will be found amongst clover, rarely among wheat, on the right-hand side on the back of the hill. July, 1846."—(Cyb. Brit. Vol. II. p. 226.) I am unacquainted with O. lucorum (Koch), and do not venture to pass an opinion upon the dried specimens of the Epsom plant. The upper segment of the sepals is much broader and more acuminated than in O. elatior, with which it agrees in the stamens being inserted a little way above the base, and by their upper portion and the style being sub-glabrous. It is much to be desired that some botanist would examine recent specimens of this plant, if it is still to be found near Epsom.

Tall Broom-rape.

French, *Orobanche Élangée.* German, *Hohe Sommerwurz.*

This species has hitherto only been noticed on the roots of *Centaurea scabiosa*, and is very rare.

SPECIES VIII.—OROBANCHE PICRIDIS. *F. Schultz.*

PLATE MXIV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCXCVI.
Billot, Fl. Gall. et Germ. Exsicc. No. 2116.

Flowers spreading. Bracts shorter than the flowers, or only slightly exceeding them. Sepals longer than the corolla-tube, entire or (more rarely) 2-cleft; the upper segment with 1 conspicuous nerve, sometimes with an indistinct one on each side. Corolla sparingly pubescent with gland-tipped hairs; tube rather narrowly cylindrical, slightly curved, with the curvature greatest towards the base; upper lip scarcely notched, with the margins erect; lower lip 3-lobed, with the lobes nearly equal; all crimped and sharply denticulate. Stamens inserted a little below the middle of the corolla-tube; filaments hairy on the inner side towards the base, their upper half and the style sub-glabrous. Stigma of 2 divaricate lobes, purple.

Parasitical on the roots of Picris hieracioides. Local. Rose-Hall Green, Freshwater Cliffs, Isle of Wight; very abundant on the undercliff between St. Margaret's Bay and Kingsdown, South Kent; about Comberton and Caxton, Cambridgeshire; Tenby, Pembrokeshire. Probably frequently passed over as O. minor.

England. Perennial. Summer.

Stem 6 inches to 2 feet high, white or tinged with pale-purple, yellowish. Flowers in a dense spike, $\frac{3}{4}$ inch long, cream-white, more or less suffused with light-purple or faintly streaked with purple, yellowish before expansion; the upper lip, which is erect, has a fold in the middle, as pointed out by the late Dr. Bromfield, which gives it the appearance of being notched, although it is really entire.

This is the palest-coloured of all the British Orobanches, the whole plant, including the flowers, appearing white at a little distance.

Picris Broom-rape.

French, *Orobanche de la Picride.* German, *Bitterkraut Sommerwurz.*

SPECIES IX.—**OROBANCHE HEDERÆ.** *Duby.*

PLATE MXV.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCIII.
Billot, Fl. Gall. et Germ. Exsicc. No. 2334.
O. barbata, *Bab.* in E. B. S. No. 2859 (non *Poir*).

Flowers spreading. Bracts as long or longer than the flowers. Sepals about as long as the tube of the corolla, entire or more rarely 2-cleft; the upper segment with 1 conspicuous nerve, generally with an indistinct one on each side. Corolla pubescent with gland-tipped hairs; tube rather narrowly cylindrical, slightly curved, with the curvature greatest towards the base; upper lip notched, with the margins slightly spreading; lower lip 3-lobed, with the middle lobe larger than the others; all crimped and sharply denticulate. Stamens inserted a little below the middle of the corolla-tube; filaments very slightly hairy on the inner side towards the base; their upper half and the style sub-glabrous. Stigma of 2 contiguous lobes, yellow.

Parasitical upon ivy. Local, but occurring in most of the South and Western counties, from the Isle of Wight to Cornwall, and North along the West coast to Carnarvon. In Ireland chiefly near the coast.

England, Ireland. Perennial. Summer.

Stem 6 inches to 2 feet high, purple. Flowers rather distant, $\frac{5}{8}$ to $\frac{3}{4}$ inch long, cream-coloured, strongly veined with purple. Bracts purple.

Most probably O. Hederæ is merely a sub-species of O. minor, as the more lax spike, 1-nerved sepals, and yellowish stigma of 2 coherent globular lobes, are all the points by which it can be distinguished from the common form of O. minor; at the same time it must be borne in mind that the differences between the different species of Orobanche are very slight, and the junction of O. Hederæ with O. minor would necessitate the reduction of half the species described by M. Reuter; so that it is necessary to pause before inaugurating such wholesale changes.

Ivy Broom-rape.

German, *Epheu Sommerwurz.*

SPECIES X.—**OROBANCHE MINOR.** *Linn.*

PLATES MXVI. MXVII.

Flowers spreading. Bracts as long as, or longer than the flowers. Sepals about as long as the tube of the corolla, entire or 2-cleft; the upper segment usually with 3 conspicuous nerves. Corolla pubescent with gland-tipped hairs; tube rather narrowly cylindrical, slightly curved, with the curvature greatest towards the base; upper lip sub-erect, notched or 2-lobed, with the lobes spreading; lower lip 3-lobed, with the middle lobe slightly larger than the others; all crimped and sharply denticulate. Stamens inserted a little below the middle of the corolla-tube; filaments very slightly hairy on the inner side towards the base, their upper half and the style sub-glabrous. Stigma of 2 divaricate lobes, purple.

SUB-SPECIES I.—**Orobanche eu-minor.**

PLATE MXVI.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCIV.

Billot, Fl. Gall. et Germ. Exsicc. No. 2513.

O. minor, *Thuill. Reuter*, in *D. C.* Prod. Vol. XI. p. 29. *Bab.* Man. Brit. Bot. ed. v. p. 237. *Hook. & Arn.* Brit. Fl. ed. viii. p. 301. *Koch*, Syn. Fl. Germ. et Helv. ed. ii. p. 611. *Gr. & Godr.* Fl. de Fr. Vol. II. p. 640.

Corolla slightly curved throughout; lower lip with the segments nearly equal.

Parasitical on clover and many other plants. Common, and generally distributed in the South of England; rare in the North and West, where York and Hereford are respectively its boundaries. In Ireland only where introduced with clover-seed.

England, [Ireland]. Perennial. Summer and Autumn.

Stem 4 to 20 inches high. Flowers $\frac{5}{8}$ to $\frac{3}{4}$ inch long, white or yellowish, generally stained and striped with dull-purple.

This is usually said to be an annual, but I have seen it come up in successive years in a flowerpot on Pelargonium, although the spike did not ripen seed.

Lesser Broom-rape.

French, *Orobanche à Petites Fleurs.* German, *Kleine Sommerwurz.*

SUB-SPECIES (?) II.—**Orobanche amethystea.** *Thuill.*

PLATE MXVII.

Reich. Ic. Fl. Germ. et Helv. Vol. XX. Tab. MDCCCVI.
O. Eryngii, *Duby,* Bot. Gall. Vol. I. p. 350.

Corolla bent into a quadrant in the lower third, the upper two-thirds of the back nearly straight; lower lip with the middle segment conspicuously larger than the others.

Parasitical on Daucus in Whitesand Bay, Cornwall; near Plymouth, Devon; on the under-cliff, south-east of St. Margaret's Bay, South Kent. On Eryngium maritimum, near Cobo, Guernsey; and St. Ouen's Bay, Jersey.

England. Perennial. Summer.

Stem 6 to 20 inches high. Flowers $\frac{5}{8}$ inch long, usually more purple than in O. minor, of which it is perhaps only a variety.

There are several other forms of O. minor which possibly deserve to be considered as sub-species; one occurs near Grand Havre, Guernsey, on Leontodon autumnale, which has the corolla curved like O. amethystea, but a much shorter and denser spike, and the whole plant, including the flowers, is yellow.

Another form, which occurs about Epsom and Leatherhead, at Sowerby, near Thirsk, Yorkshire, and near Pangbourne, Berks, is a much larger plant than the ordinary O. minor, often 2 feet high, with the corolla more curved, the curvature greatest near the middle; the lips much longer in proportion, and the middle segment of the lower lip conspicuously larger than the others.

Bluish Broom-rape.

French, *Orobanche du Panicaut.* German, *Amethystfarbene Sommerwurz.*

EXCLUDED SPECIES.

OROBANCHE SPECIOSA. *D.C.*

A single specimen of this species occurred in a garden at Bridgewater, in 1860, parasitical on the common garden pea. It is the O. pruinosa of La Perouse.

ORDER LI*.—ACANTHACEÆ.

EXCLUDED SPECIES.

ACANTHUS MOLLIS. *Linn.*

Formerly found in the island of St. Agnes, Scilly; no doubt introduced. Mr. F. Townsend, in 1863, was unable to see or hear that it was still in existence, so that it is probably extinct.

ORDER LII.—VERBENACEÆ.

Herbs, shrubs, or trees, with opposite or (rarely) verticillate leaves and no stipules. Flowers perfect, irregular or nearly regular, generally in spikes, heads, racemes, or cymes, rarely solitary. Calyx free from the ovary, persistent, tubular, monosepalous, 2- to 5-toothed. Corolla hypogynous, monopetalous, generally more or less bilabiate and ringent, sometimes with the limb spreading so as to be nearly salver-shaped. Stamens 4, didynamous, the 2 uppermost often imperfect, very rarely 5. Ovary entire, not 4-lobed, 2- or 4-celled. Style terminal. Stigma undivided, or sometimes bilobed. Ovules 1 in each cell when there are 4, 1 or 2 in each cell when there are only 2 cells in the ovary. Fruit dry or drupaceous, generally splitting when ripe into 2 or 4 indehiscent cocca or nucules containing 1, rarely 2 erect seeds. Seeds solitary in each cell. Embryo straight, large, not surrounded by albumen, or with only a small quantity of fleshy albumen.

GENUS I.—VERBENA. *Tournef.*

Calyx tubular, 4- or 5-toothed. Corolla irregular, salver-shaped or sub-bilabiate; tube cylindrical, straight or curved; limb 5-cleft, with the segments obtuse, spreading, nearly equal, or 2 in the upper lip and 3 in the lower. Stamens 4, didynamous, included, all fertile, or the 2 upper ones sterile. Style terminal; stigma subcapitate. Fruit dry, 2-celled and splitting into 2, or 4-celled and splitting into 4 cocca. Seed solitary in each cell.

Herbs or shrubs, of various habit, with the leaves opposite, and the flowers variously disposed, sessile, often brightly coloured.

The name of this genus of plants is said to come from the old Celtic word *ferfaen*, which is of great antiquity, and was originally applied to a plant esteemed in magic.

SPECIES I.—VERBENA OFFICINALIS. *Linn.*

PLATE MXVIII.

Reich. Ic. Fl. Germ. et Helv. Vol. XVIII. Tab. MCCXCII. Fig. 2.
Billot, Fl. Gall. et Germ. Exsicc. No. 67.

Perennial. Stem erect, stiff, paniculately branched above. Leaves pinnatifid, hispid. Flowers in slender spikes at the extremity of the stem and branches, lax in fruit. Bracts ovate-acuminate, about half as long as the calyx. Stamens 4, didynamous.

On dry banks, roadsides, and waste ground. Common in the South of England, more rare in the North. In Scotland only near Inverkeithing; no doubt introduced with ballast.

England, [Scotland,] Ireland. Perennial. Late Summer and Autumn.

Rootstock woody, branched, producing several stems 1 to 2 feet high. Leaves opposite, 1 to 3 inches long, oblanceolate or subrhomboidal in outline, pinnatifid, with the lobes acute or obtuse, entire or toothed on the lower side, the basal ones sometimes larger, so that the leaf becomes somewhat trifid; upper leaves narrower, sometimes entire. Spikes dense when in flower, afterwards elongating and becoming virgate. Corolla-tube about twice as long as the calyx; limb $\frac{1}{6}$ inch across, pale-lilac. Fruit of 4 reddish-brown nuts, truncate at the apex, granulated with white points on the inner face. Plant dull-green, more or less hispid.

Common Vervain.

French, *Verveine officinale.* German, *Gebräuchliches Eisenkraut.*

The Vervain is a plant with a curious and interesting history. It was undoubtedly the *herba sacra* of the ancient Druids, in honour of which Verbenalia were annually held, and one of several plants which were dedicated to the service of the altar and the decoration of the priesthood. In ancient Greece the plant was supposed to possess extraordinary virtues. Medea used Verbena when she gave youth again to Æson, and in Virgil the priests bound it about their temples on the morning of the death of Æneas. Vervain was also usually offered as a pledge of mutual good faith between the Romans and their enemies, as in the solemn league between Tullus Hostilius and the Albans, and was undoubtedly regarded in the same manner as is a modern flag of truce. Ambassadors and heralds-at-arms wore chaplets of Vervain on denouncing war or conveying messages of defiance. Drayton tells us—

> " A wreath of Vervain heralds wear."

With the Druids the ancient veneration for the Vervain was almost equal to that for the Mistletoe ; and Mason describes its use in their solemn incantations :—

> " Lift your boughs of Vervain blue,
> Dipt in cold September dew ;
> And dash the moisture, chaste and clear,
> O'er the ground, and through the air,
> Now the place is purged and pure."

Something of the superstition of these early times with respect to this plant was transmitted to our more recent forefathers, who regarded it as a charm for many diseases. In Germany, and many parts of France, it was gathered with many unintelligible cabalistic ejaculations during certain phases of the moon, and was supposed to be a certain charm against witchcraft, and to work miracles of a surprising kind. As a medicine it was highly extolled ; volumes were written on its virtues, while, in reality, its qualities are almost inert. The belief in its efficacy was great in the time of John Ray, who denounced the notion ; and Gerarde, in spite of the eulogies of Pliny, Dioscorides, and other writers, says,—" Many odde olde wives fables are written of Vervain tending to witchcraft and sorcierie which you may read elsewhere, for I am not willing to trouble your eares with reporting such trifles as honest eares abhore to heare. Most of the later phisicians do give the juice or decoction heerof to them that have the plague ; but these men are deceived, not onely that they look for some truth from the father of falsehoods and leasings, but also bicause insteede of a good and sure remedie, they minister no remedie at all ; for it is reported that the divill did reveale it as a secret and divine medicine." A common English name for the Vervain was Simpler's Joy, given to it, doubtless, from the large amount of custom it brought to these herbsellers. It was also called Pigeons' Meat, because these birds were supposed to be fond of it. Few old English gardens are without some plants of Vervain, and we meet with it in many of the receipts left to us in the records of domestic pharmacy which used to employ the delicate hands of unlicensed female practitioners of former days, when women recognized their mission as ministering angels and curers of the sick.

The gay autumnal flower known as the Verbena of our gardens, and filling our parterres with its many-coloured flowers, belongs to the same family as the Vervain. It is a native of Buenos Ayres. We are also reminded of the lemon-scented Verbena, or Aloysia, which is a native of Chili, and but seldom grows out of doors in England. In warm and sheltered positions, however, in favourable climates, such as the South of Devon and the Isle of Wight, it becomes almost tree-like, and has long pendulous branches.

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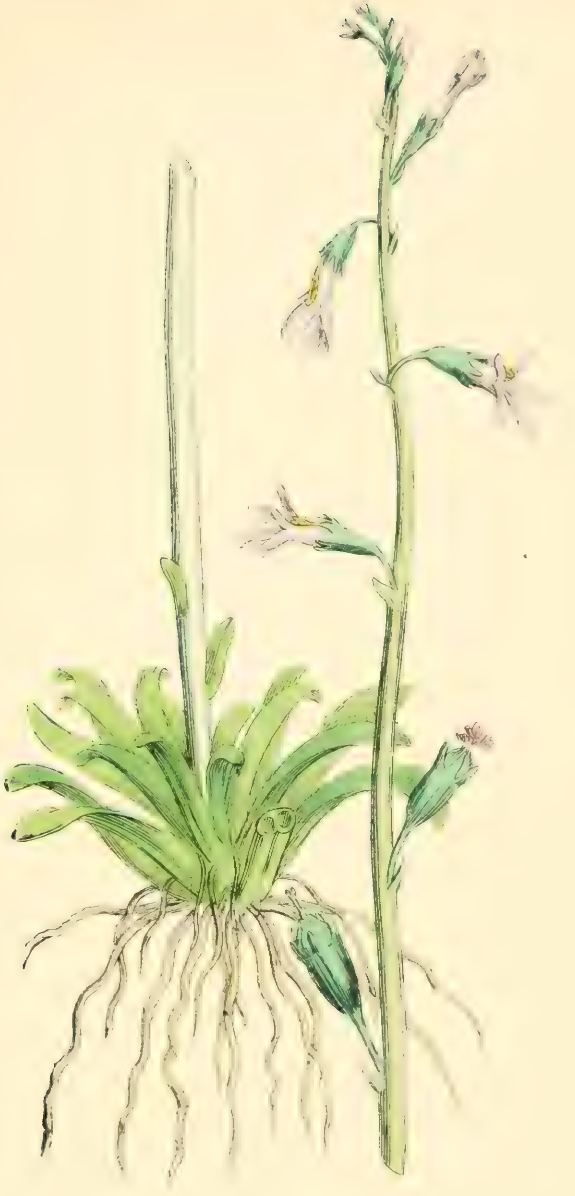
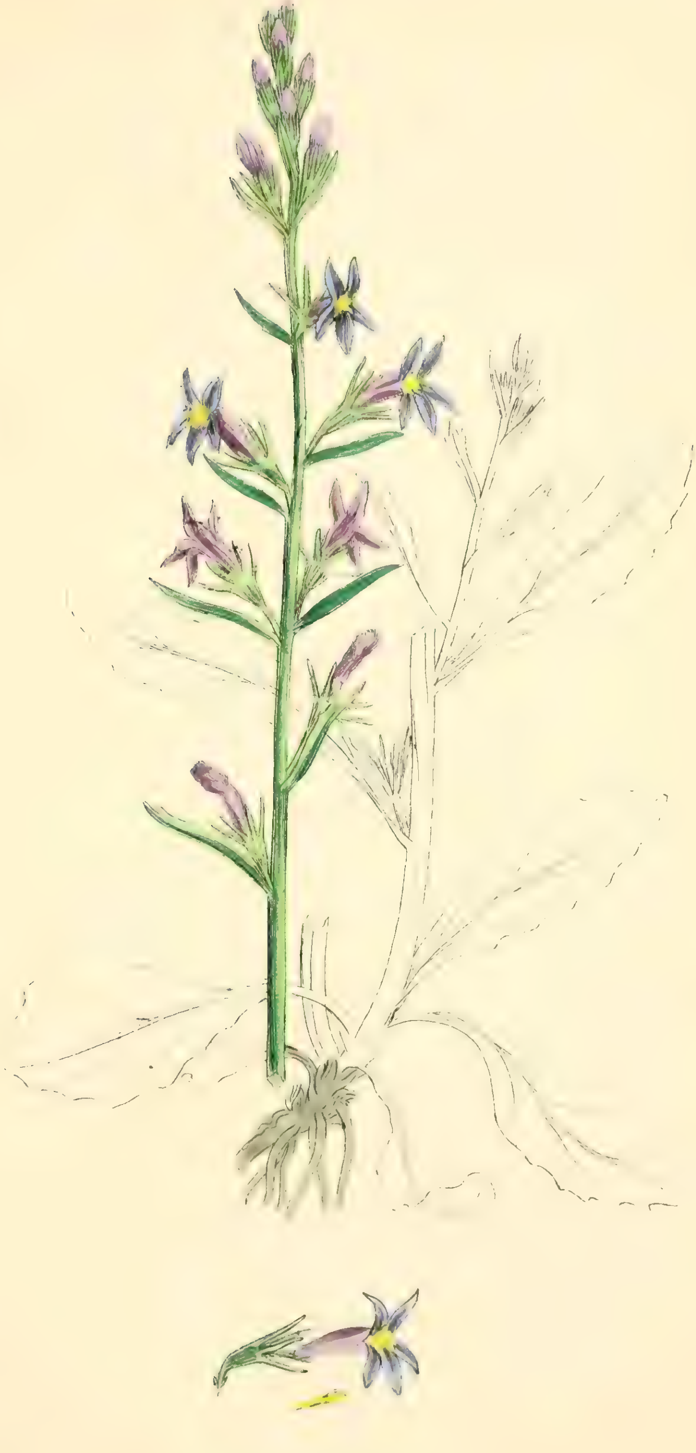
ENGLISH BOTANY.

ILLUSTRATIONS.



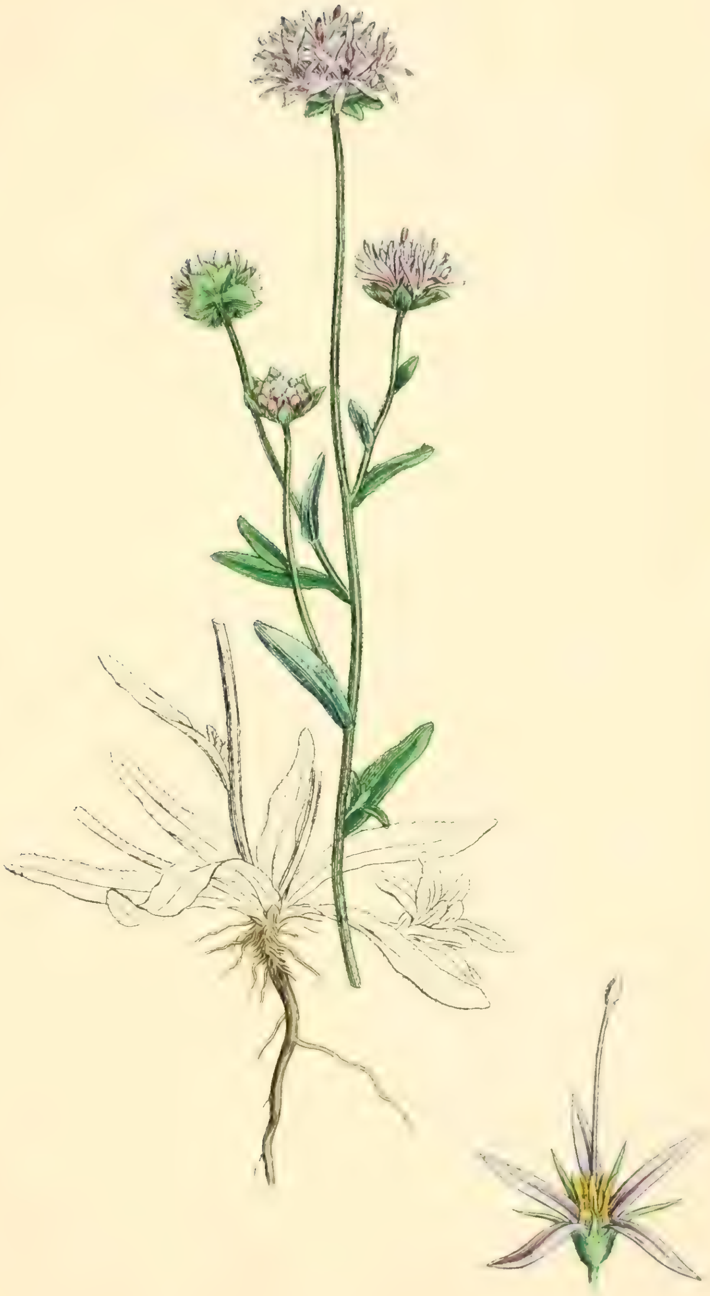
E. B. 140.

Lobelia Dortmanna. Water Lobelia.



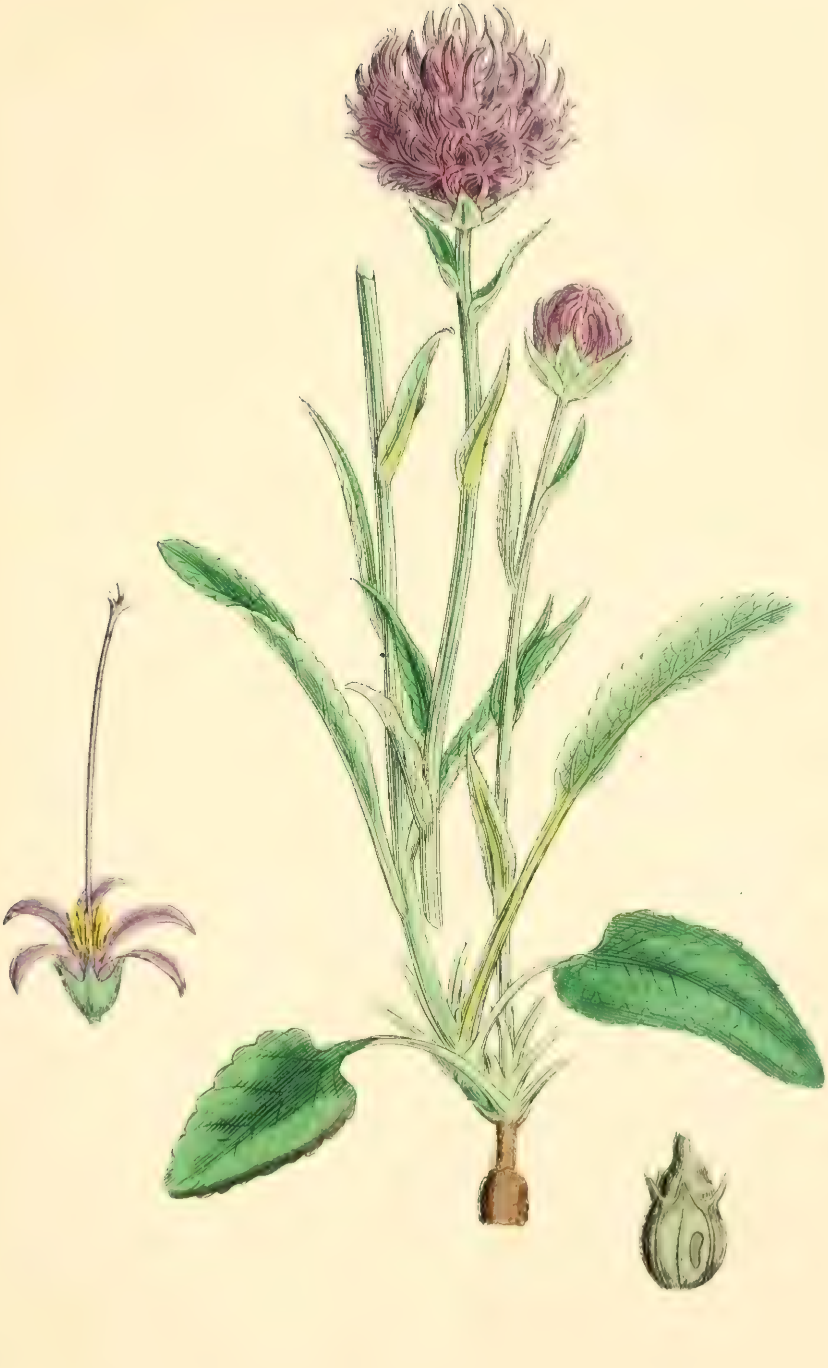
E. B. 953.

Lobelia urens. Acrid Lobelia.



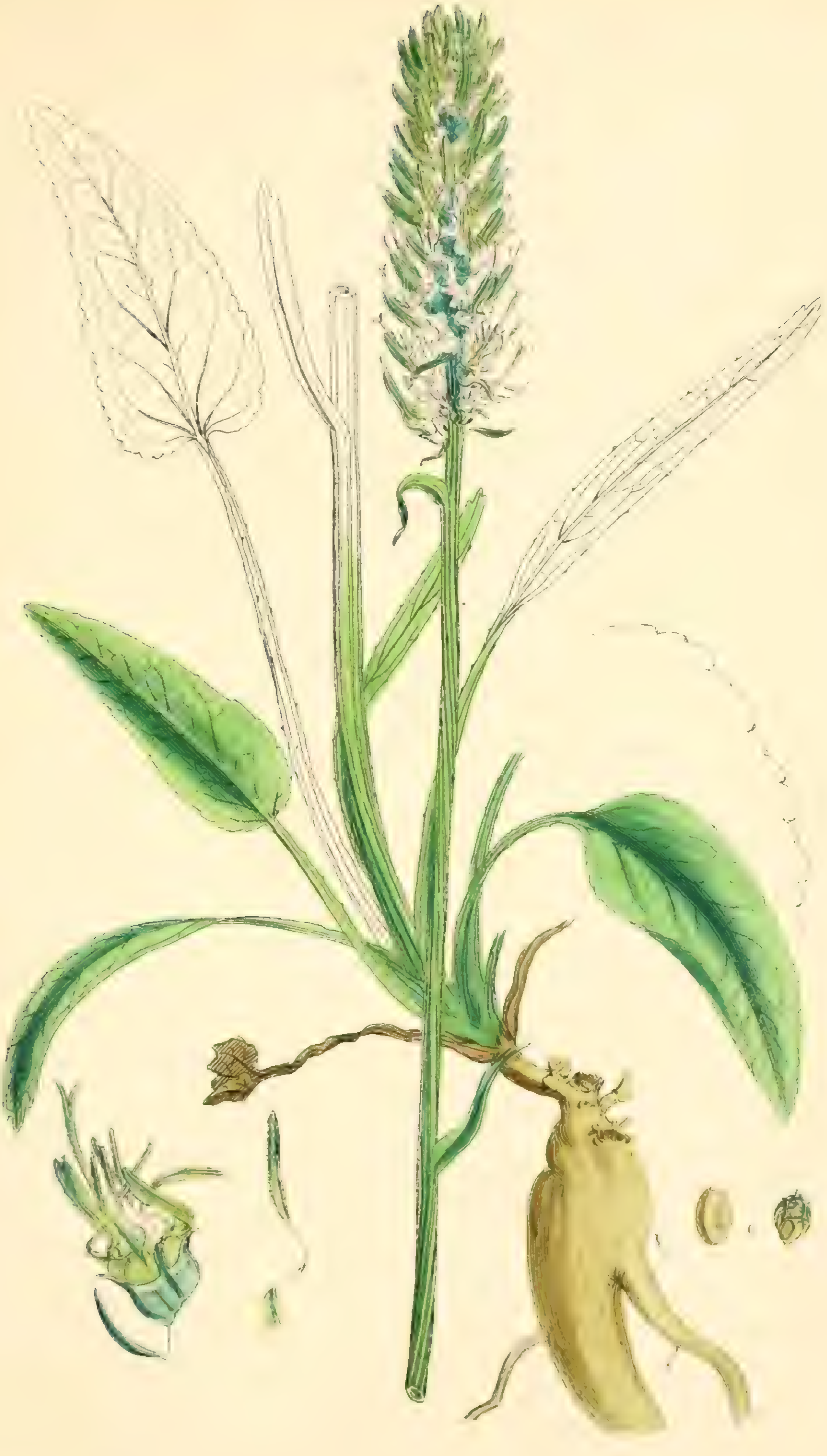
E. B. 882

Jasione montana. Annual Sheep's-bit.



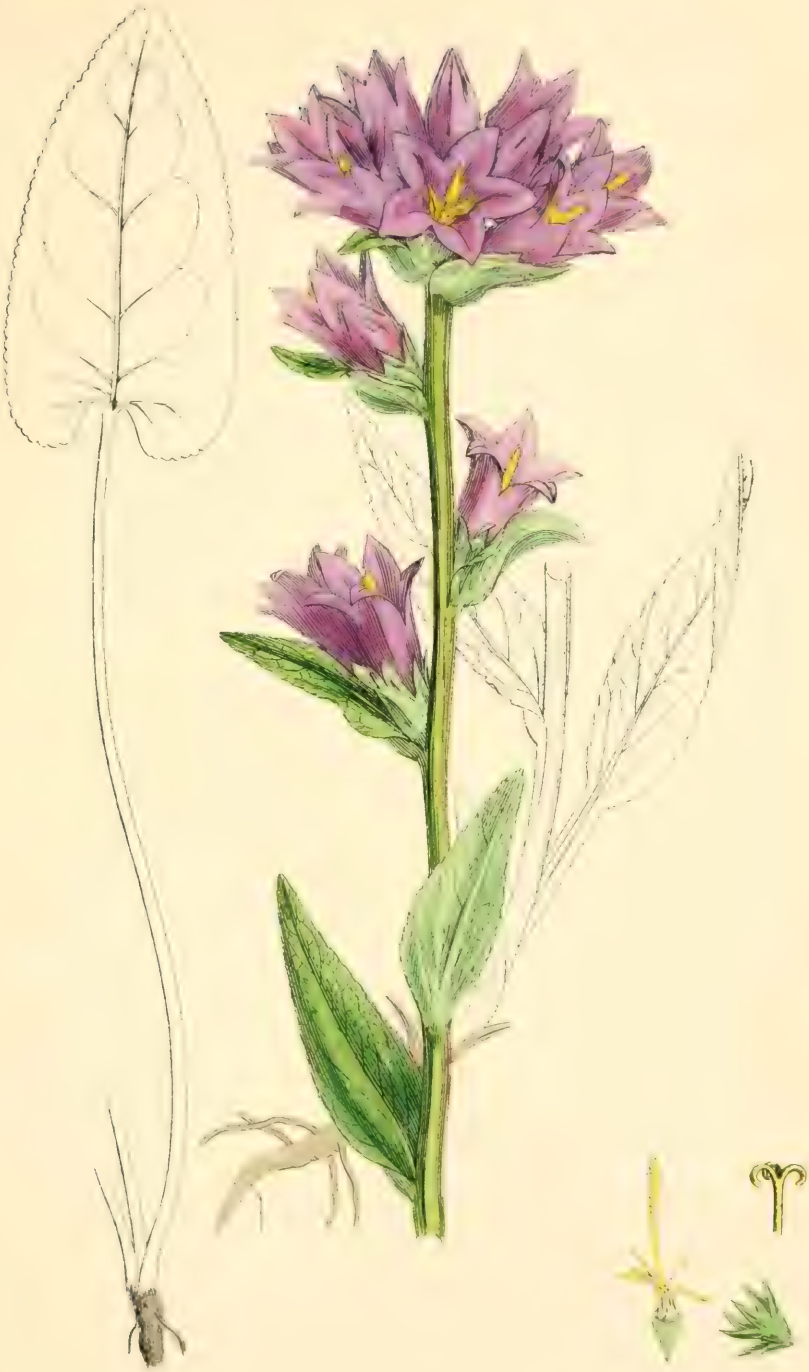
E. B. 142.

Phyteuma orbiculare. Round-headed Rampion.



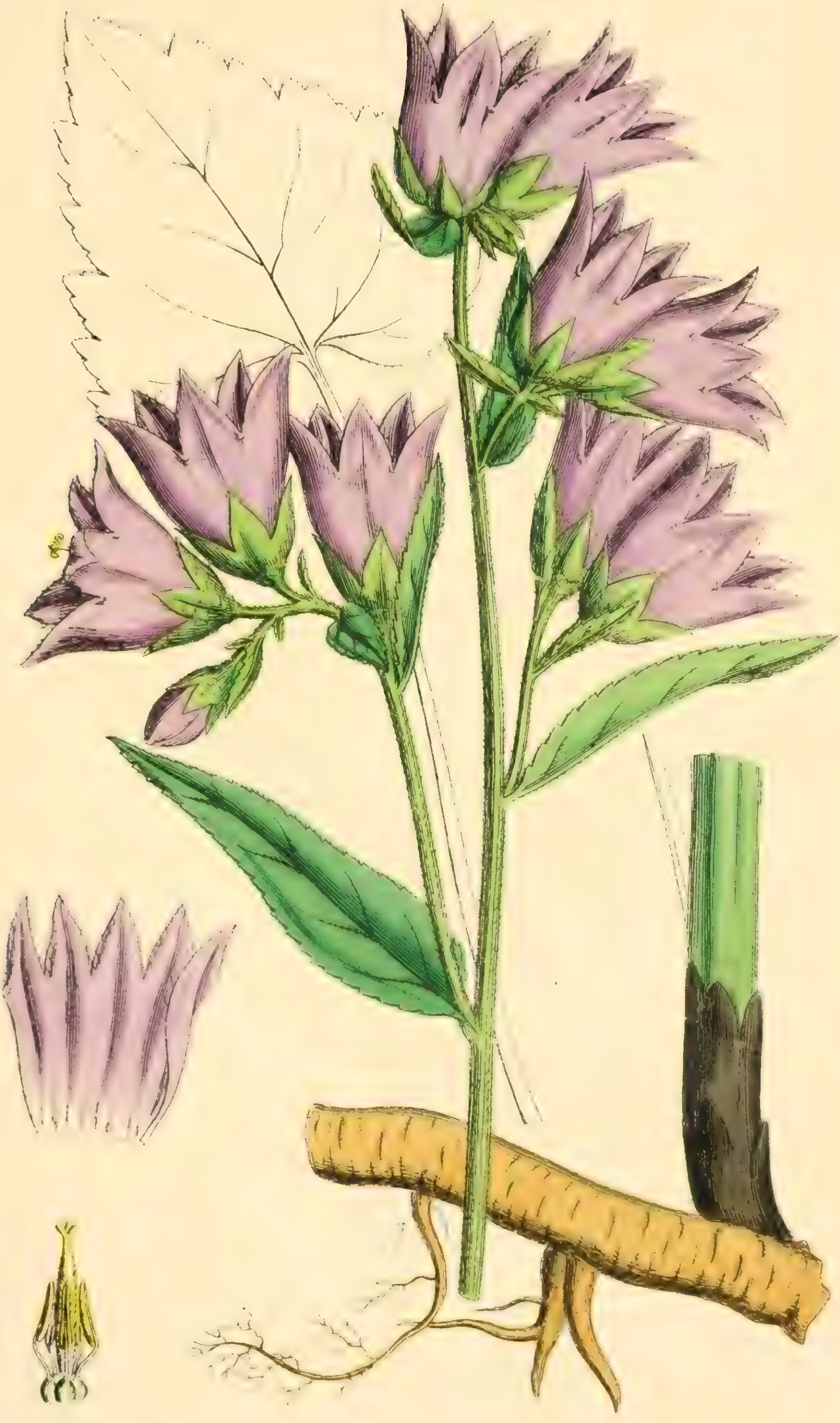
E.B.S. 2598.

Phyteuma spicatum. Spiked Rampion.

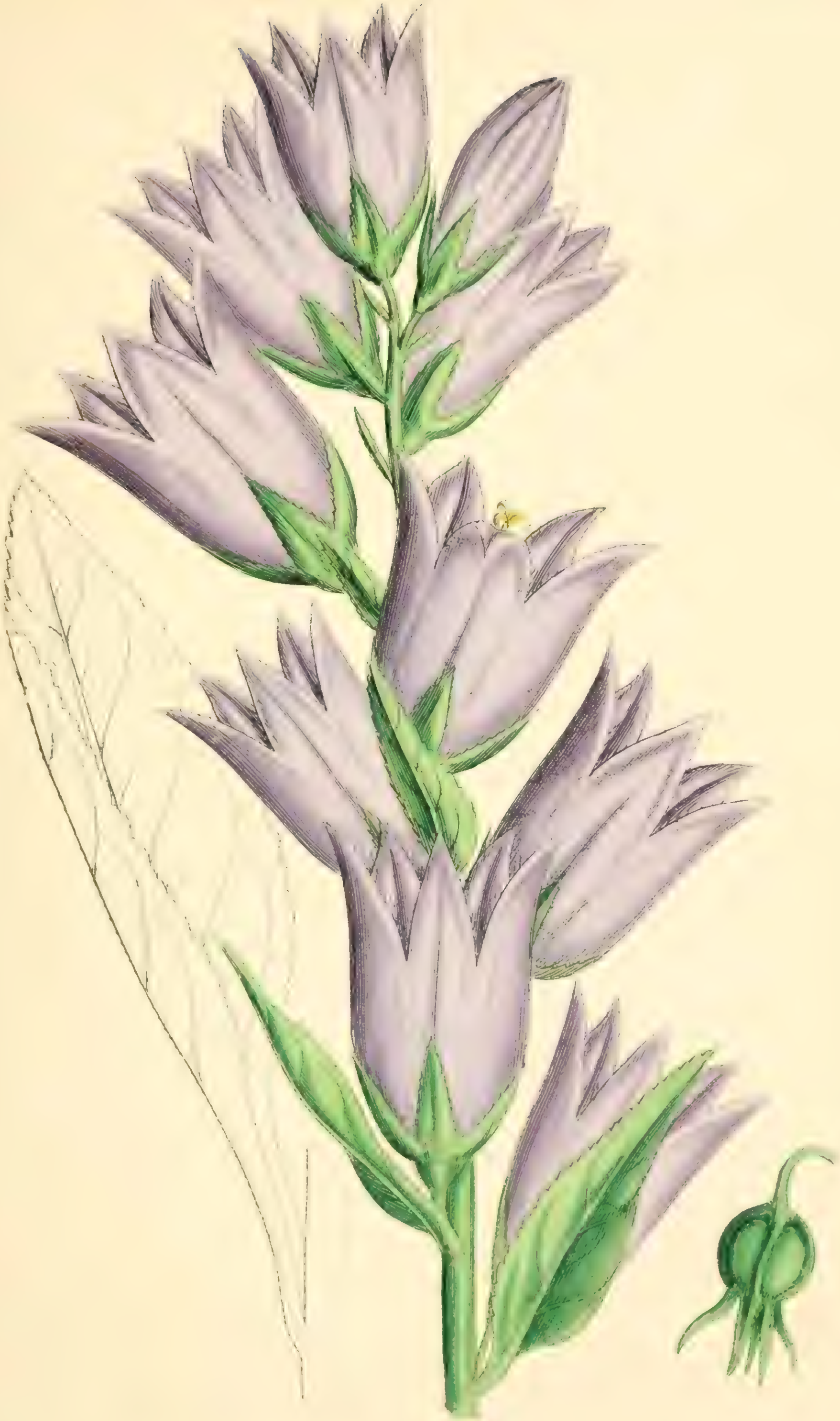


E. B. 90.

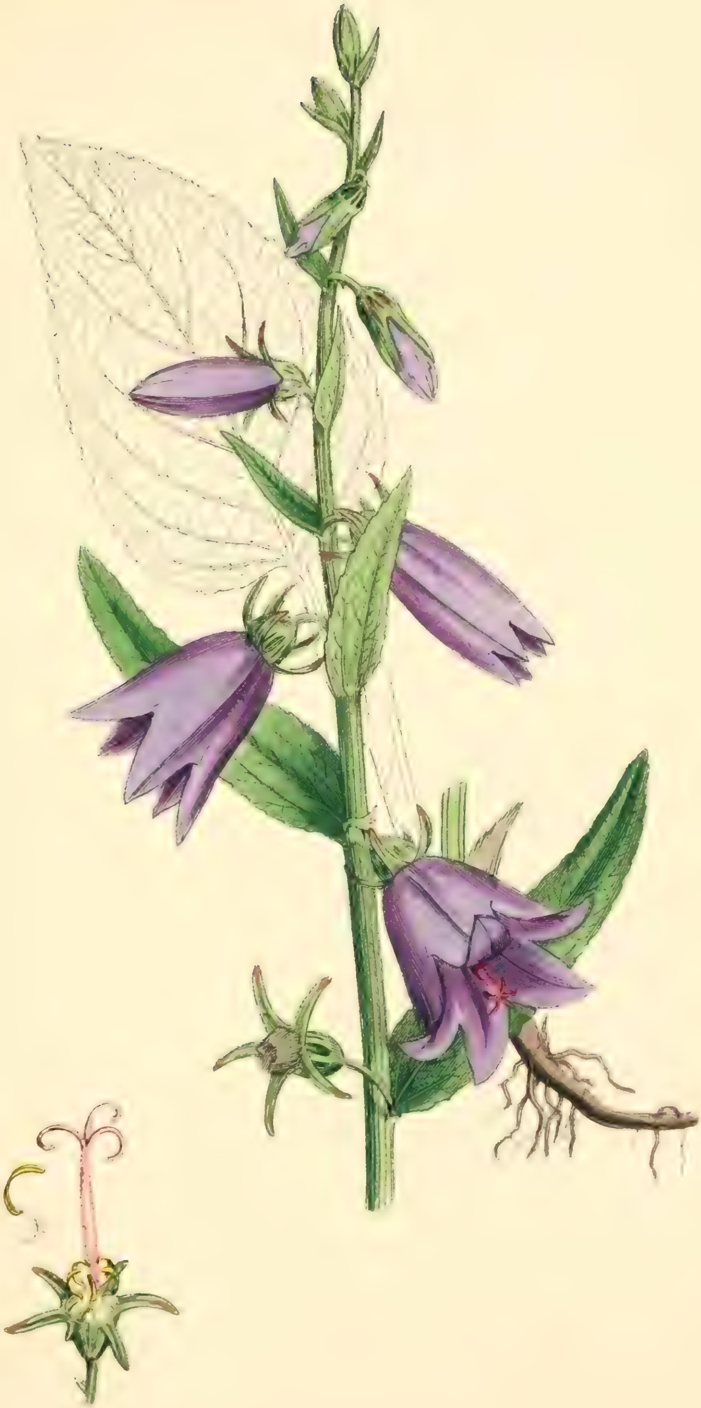
Campanula glomerata. Clustered Bell-flower.



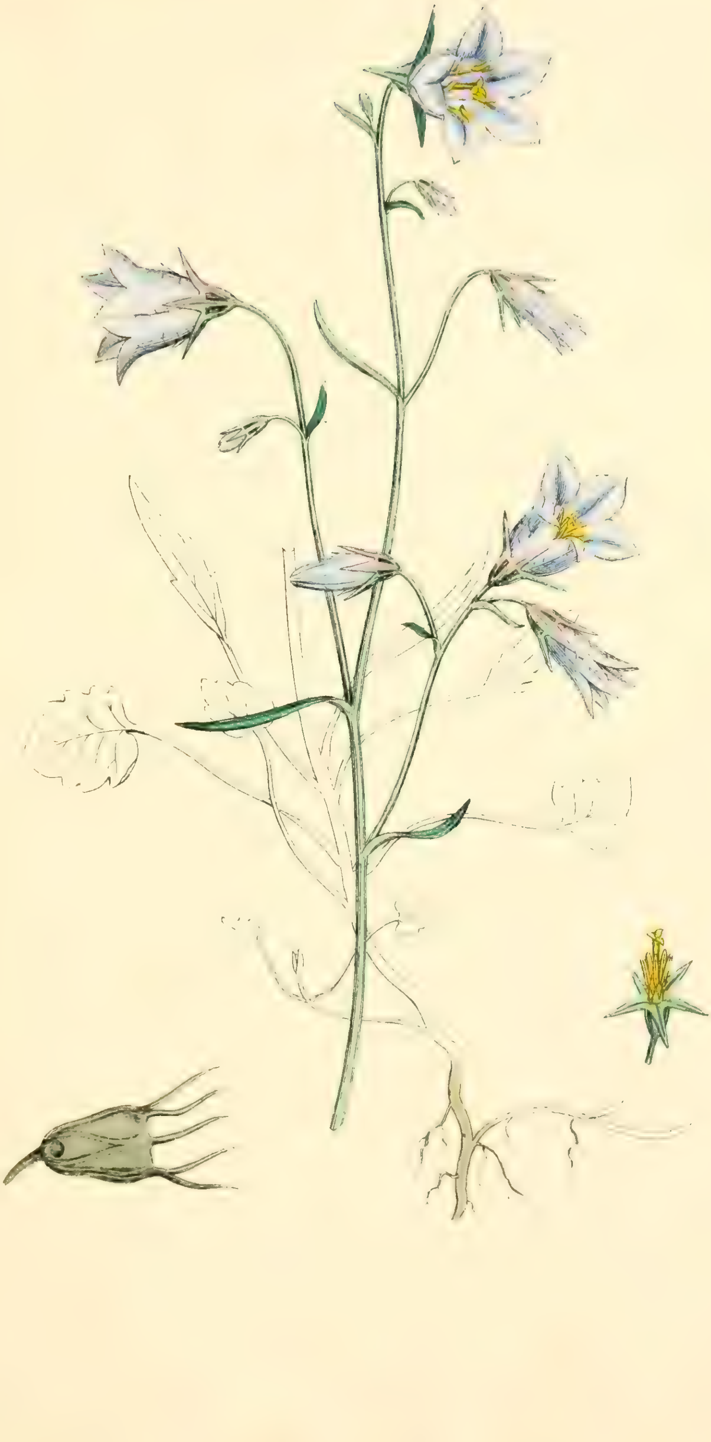
Campanula Trachelium. Nettle-leaved Bell-flower.



Campanula latifolia. Giant Bell-flower.

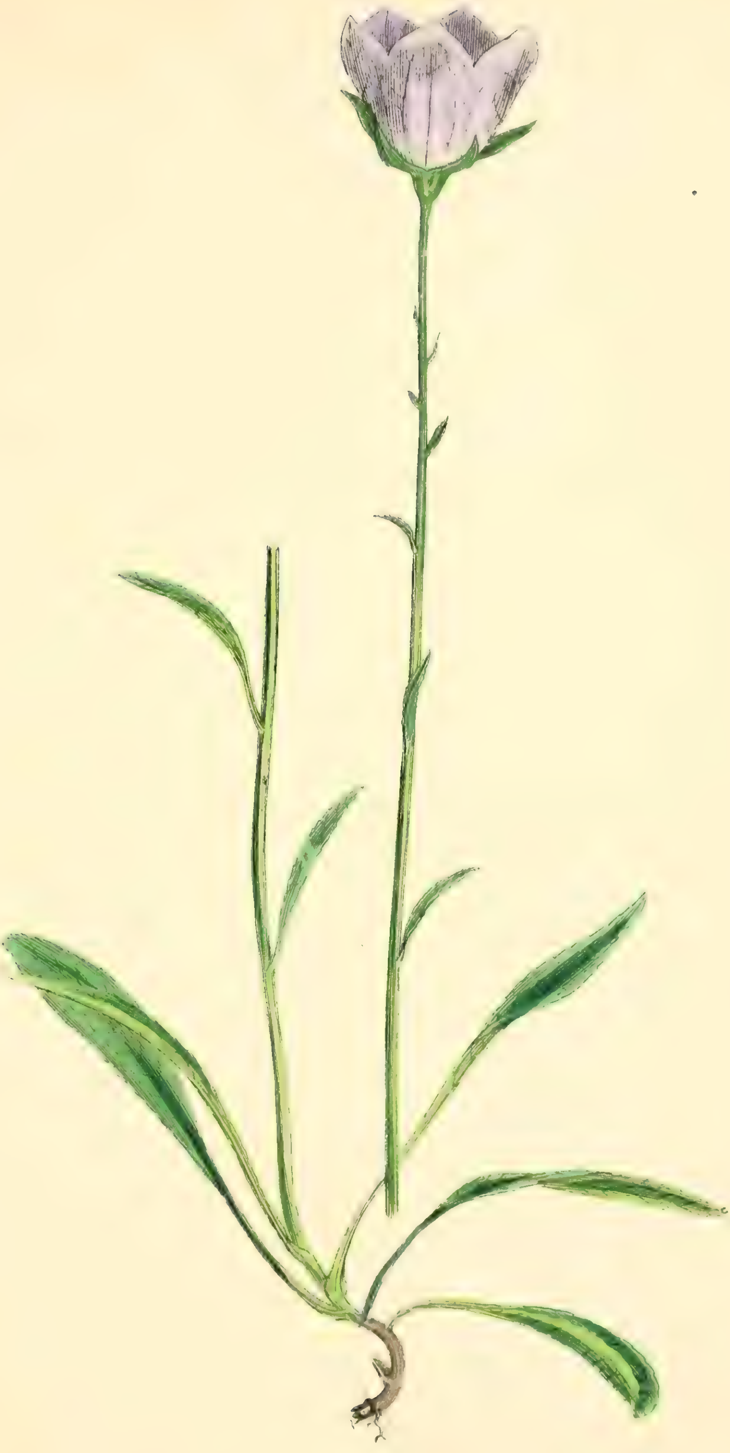


E. B. 1369. Campanula rapunculoides. Creeping Bell-flower.



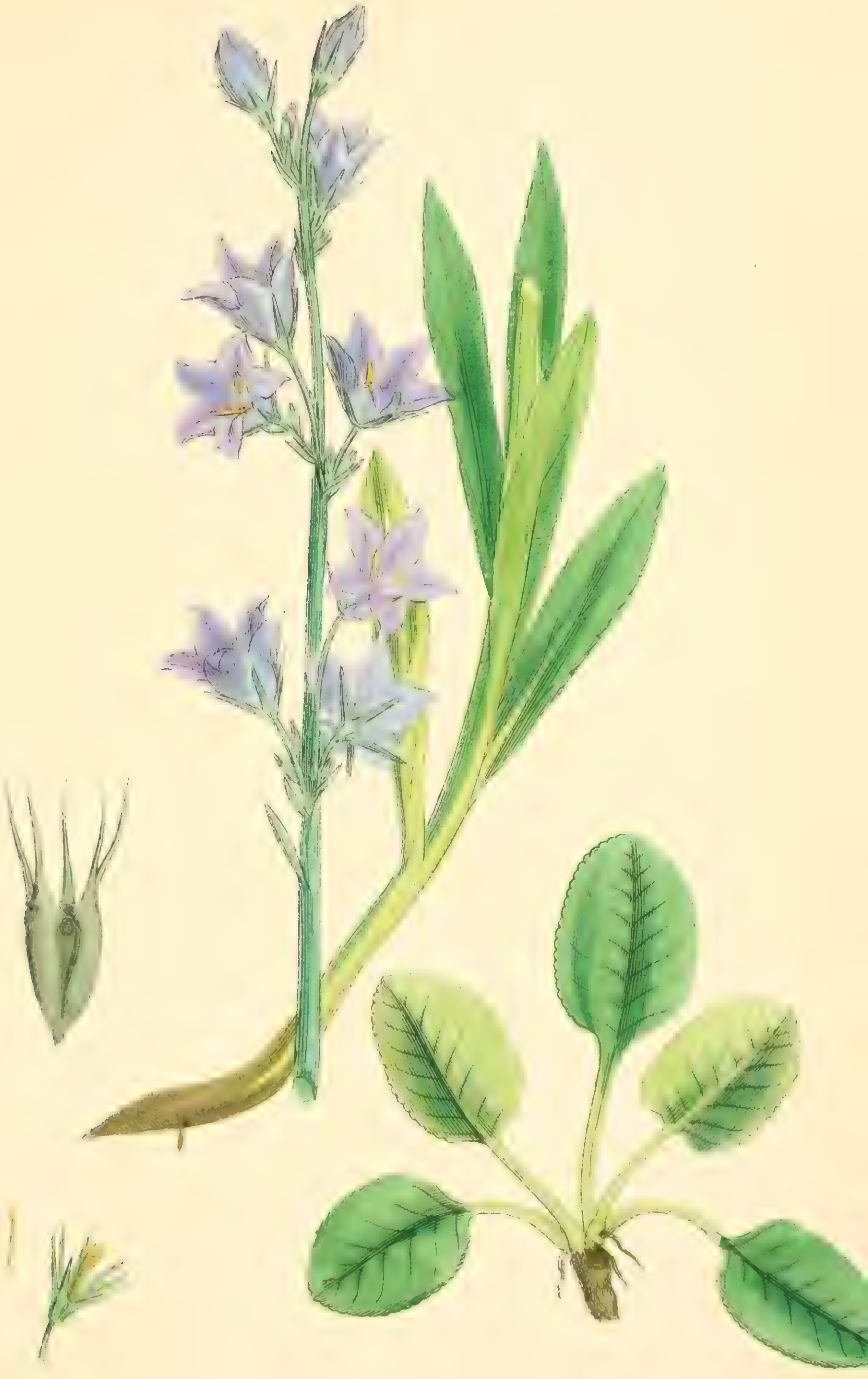
E. B. 866.

Campanula rotundifolia. Hare-bell.



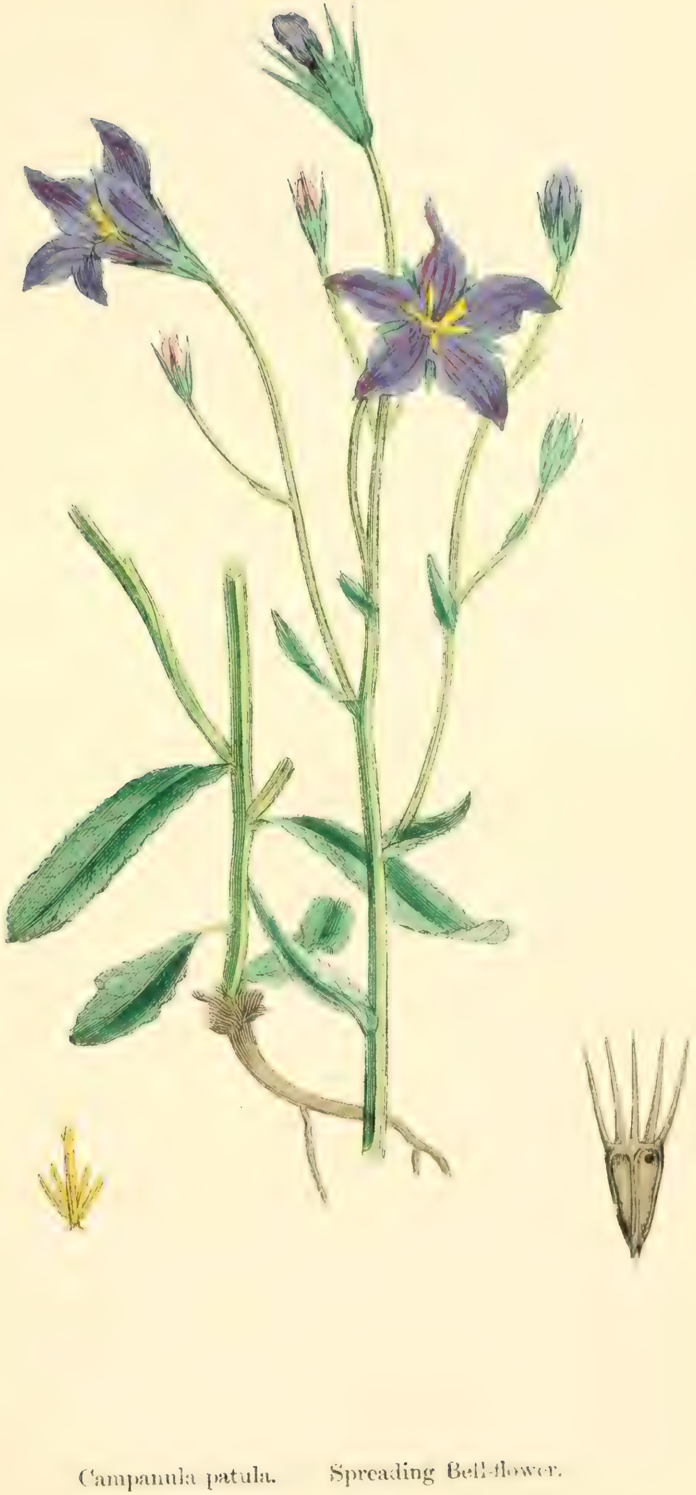
E. B. S. 2773.

Campanula persicifolia. Peach-leaved Bell-flower.



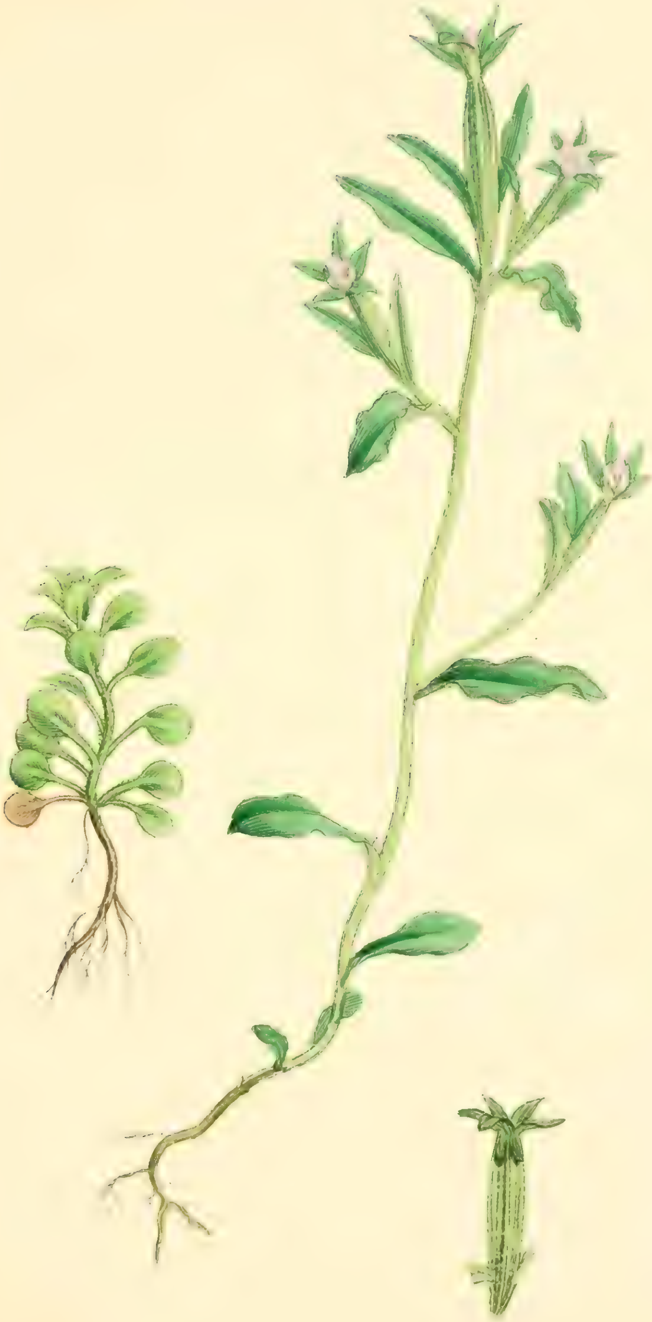
E. B. 283.

Campanula Rapunculus. Rampion Bell-flower.



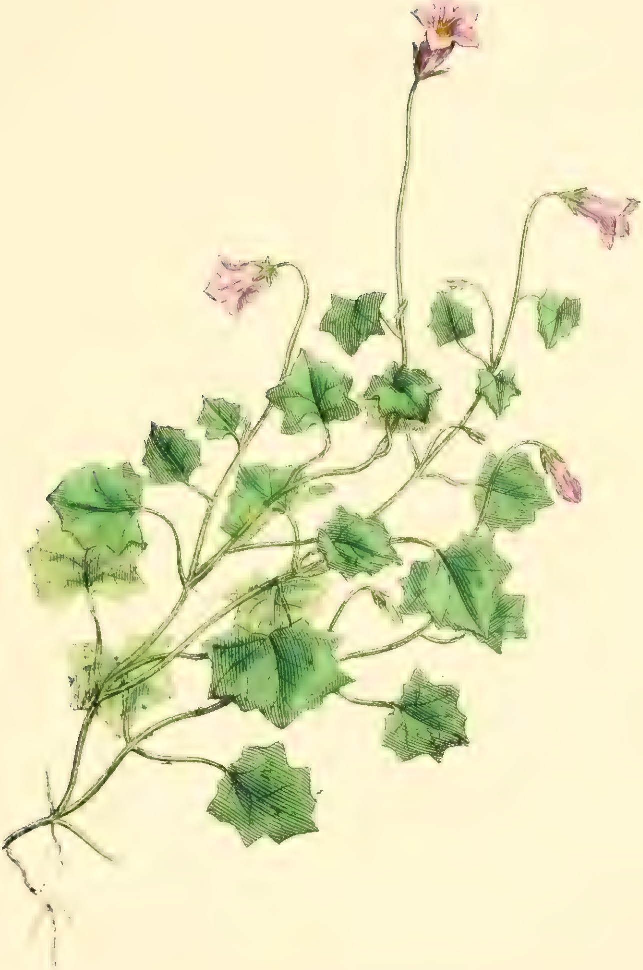
E. B. 42.

Campanula patula. Spreading Bell-flower.



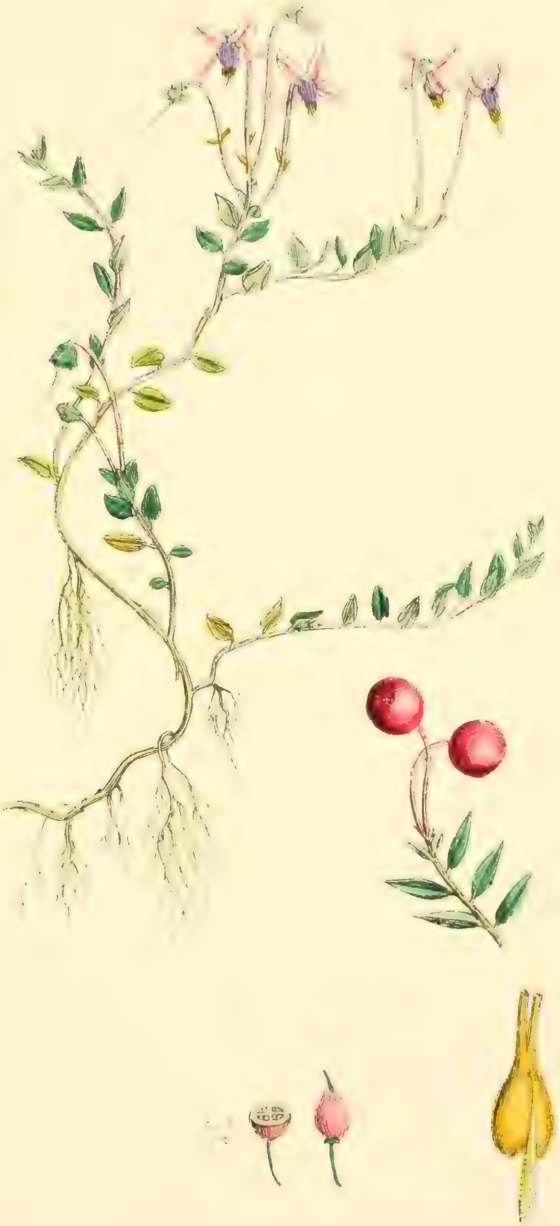
E. B. 375.

Campanula hybrida. Small-flowered Venus'-looking-glass.



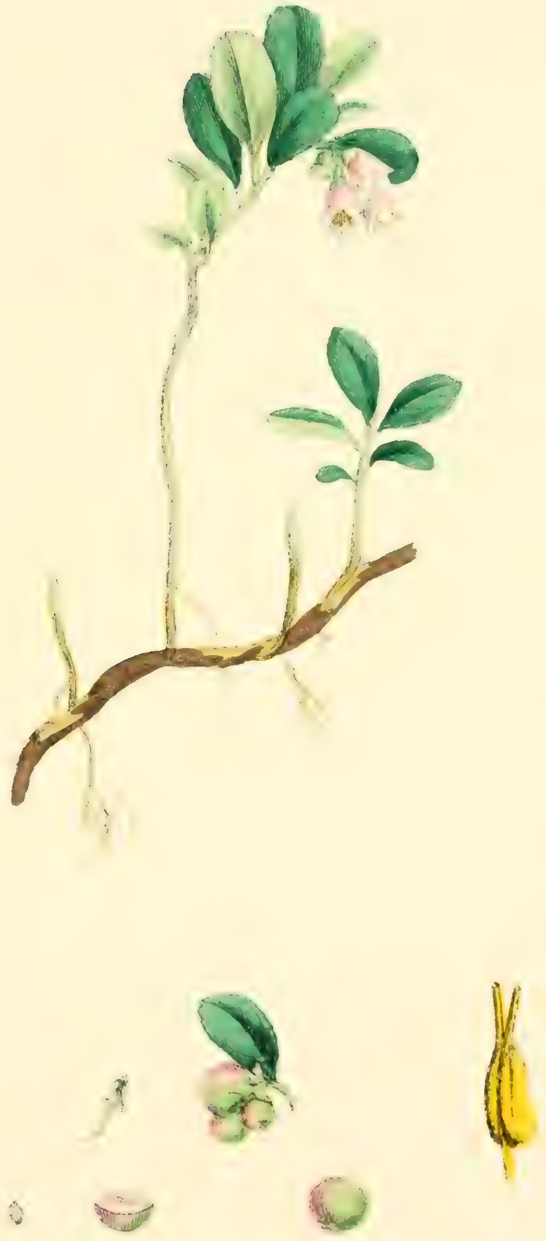
E. B. 73.

Campanula hederacea. Ivy-leaved Bell-flower.



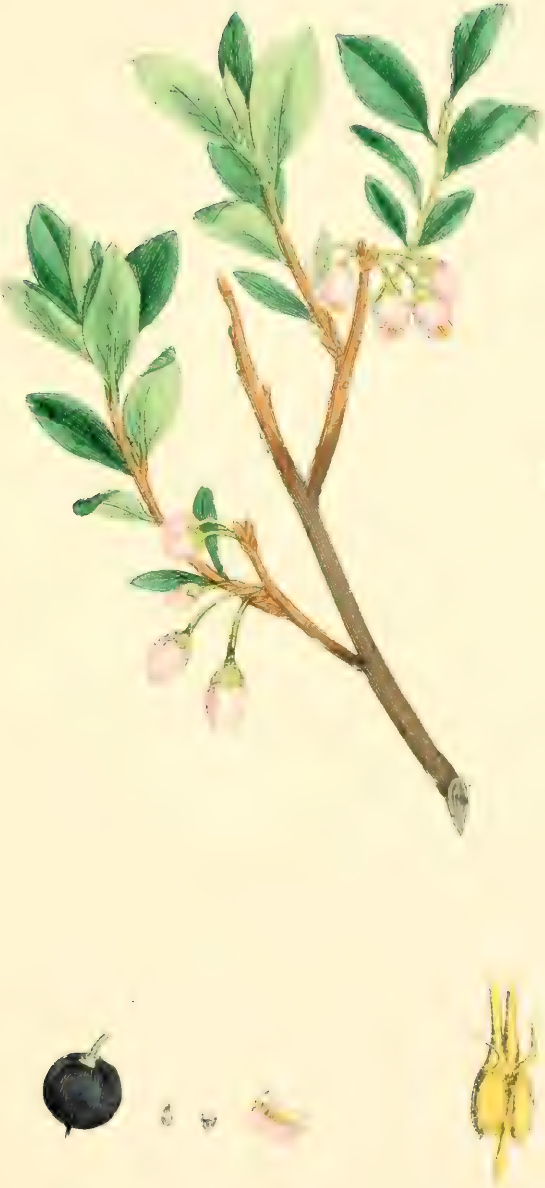
E. B. 319.

Vaccinium Oxycoccos. Marsh Cranberry.



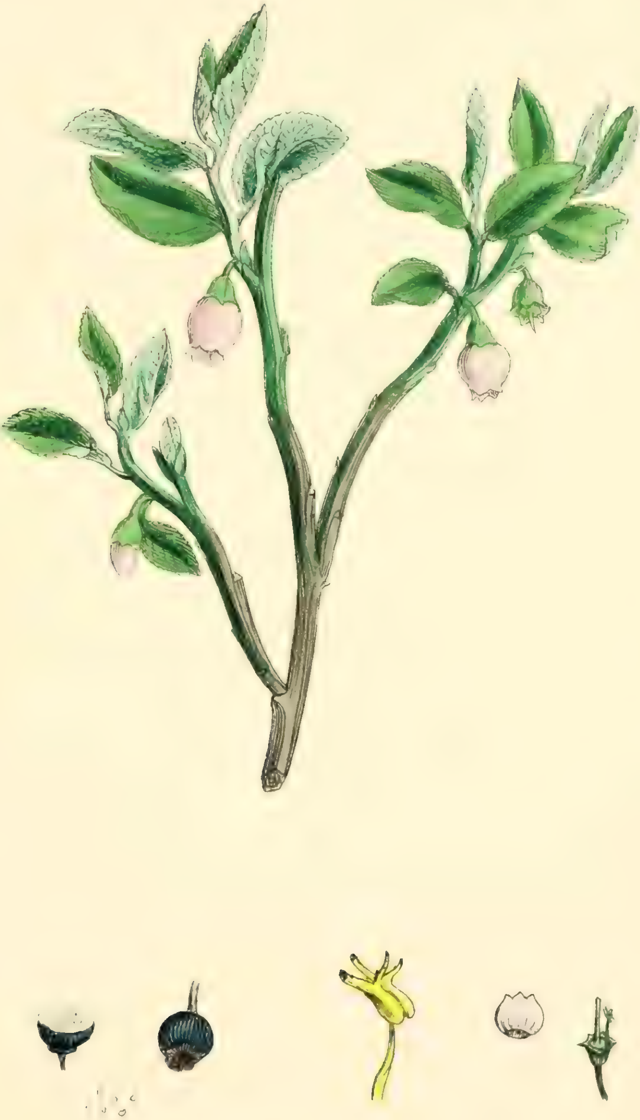
E. B. 598.

Vaccinium Vitis-idæa. Red Whortleberry.



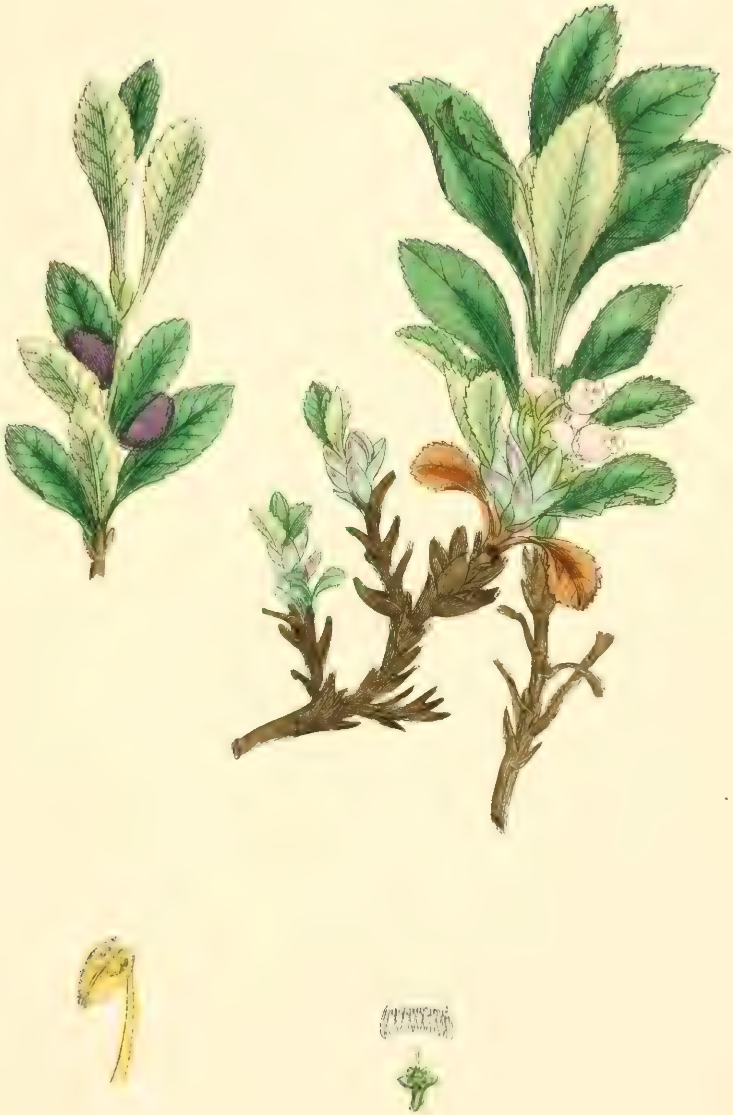
E. B. 581.

Vaccinium uliginosum.   Great Bilberry.



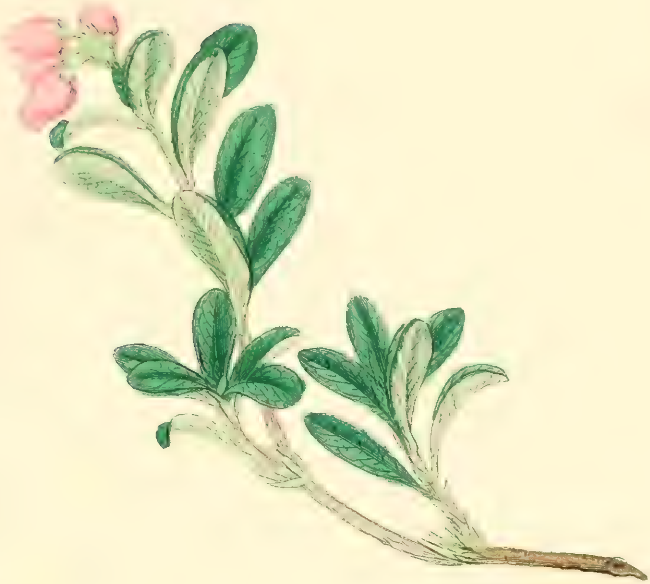
E. B. 456.

Vaccinium Myrtillus. Common Bilberry.



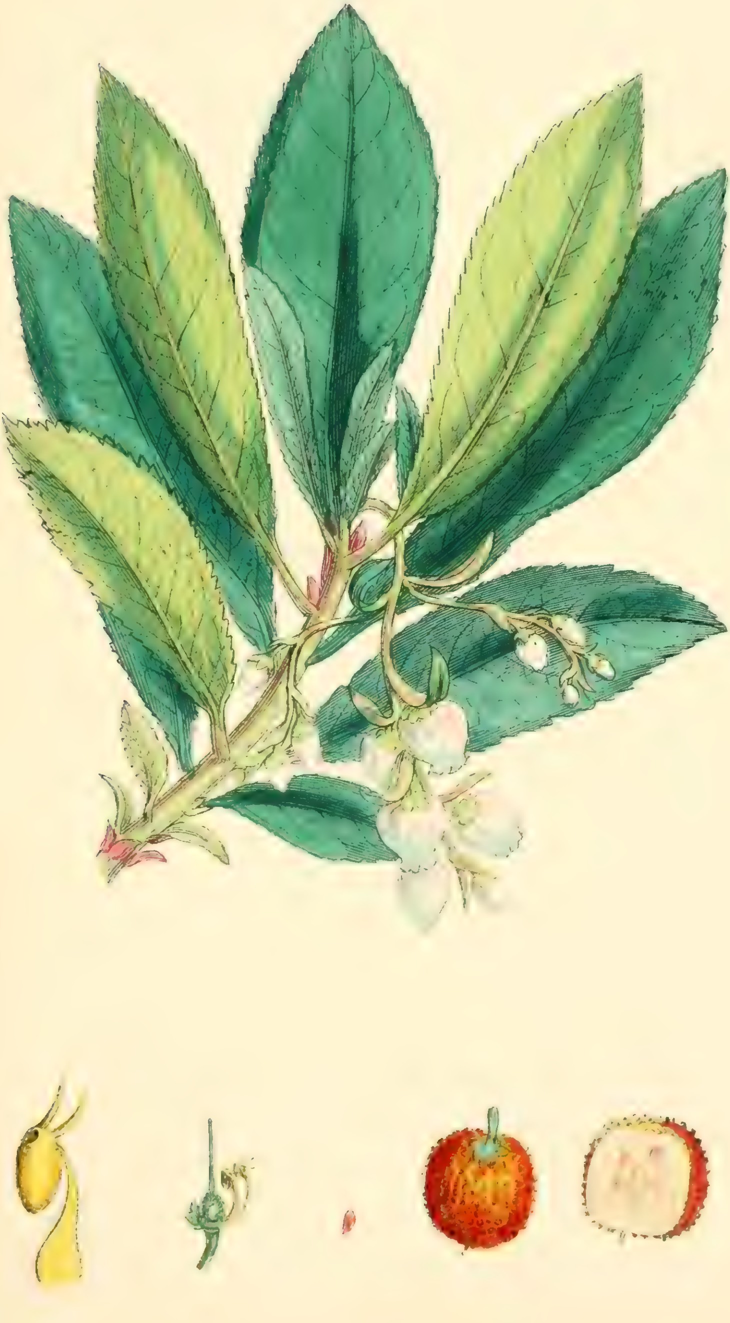
E.B. 2030.

Arctostaphylos alpina. Alpine Bearberry.



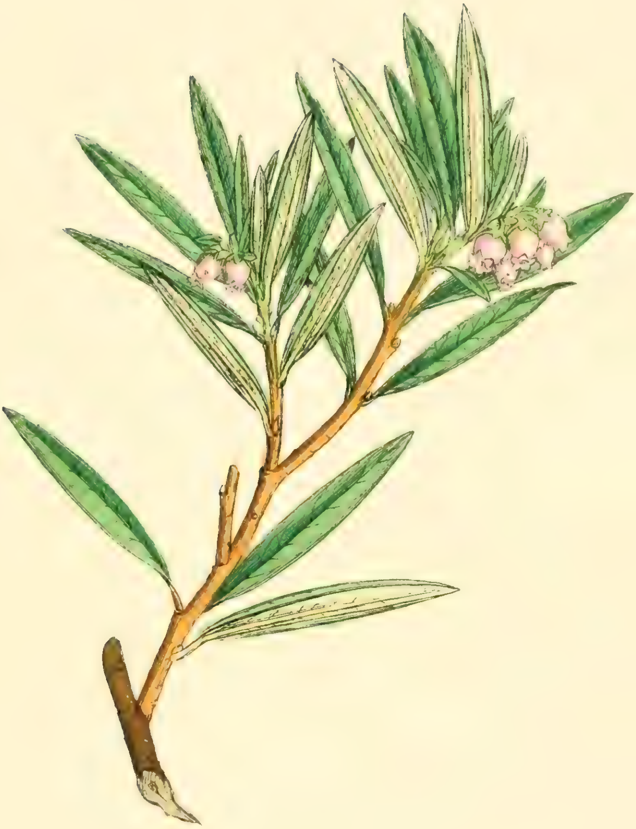
E. B. 714.

Arctostaphylos Uva-ursi. Common Bearberry.



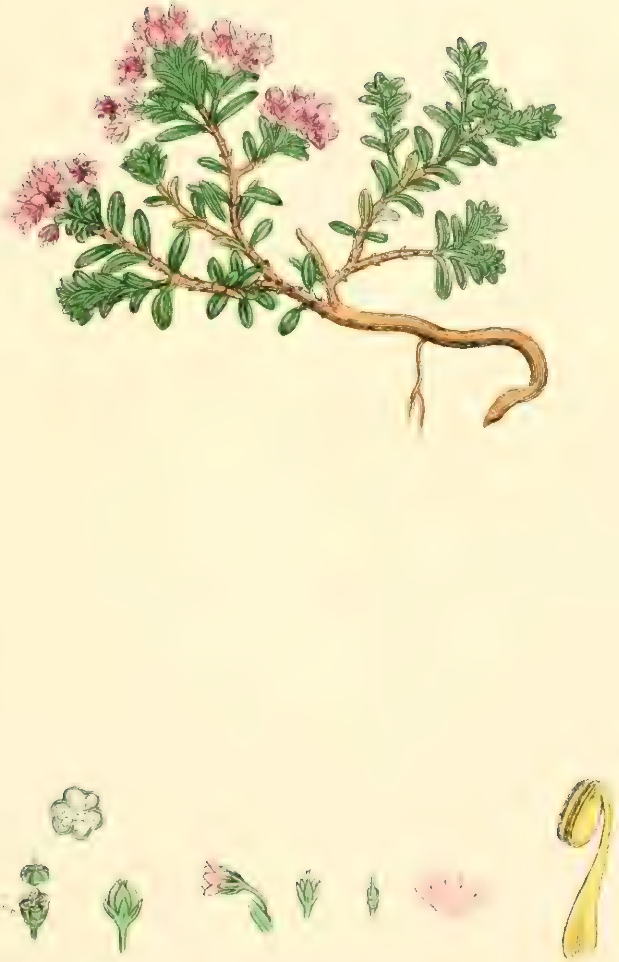
377.

Arbutus Unedo. Strawberry-tree.



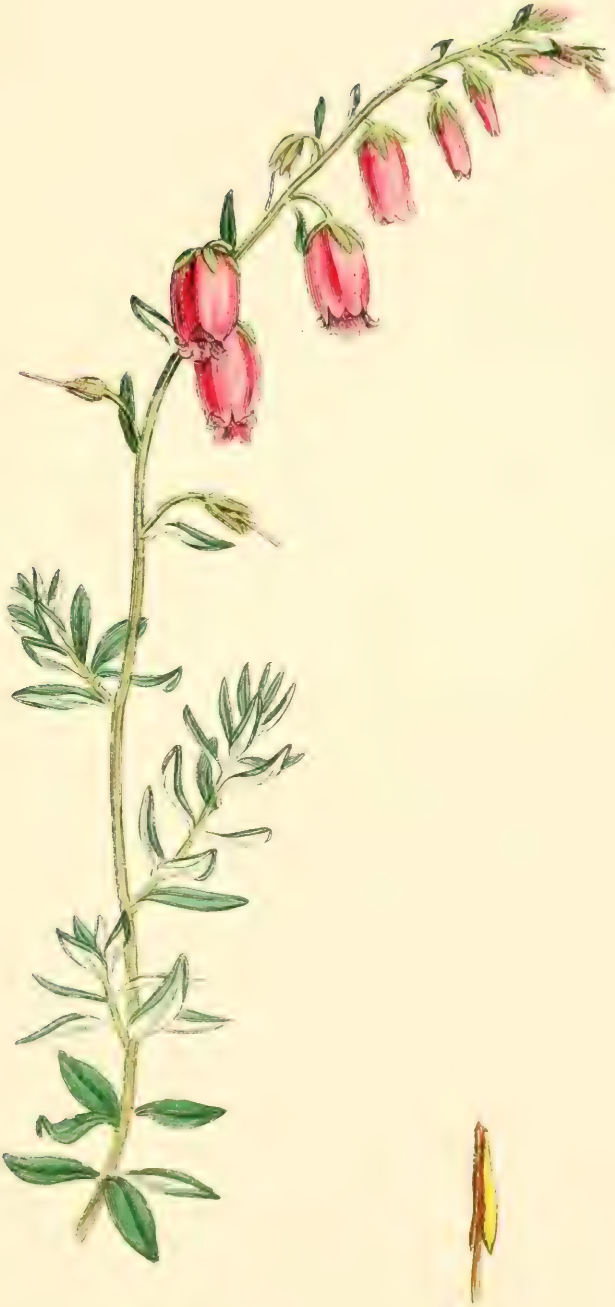
E. B. 713.

Andromeda polifolia. Marsh Andromeda.



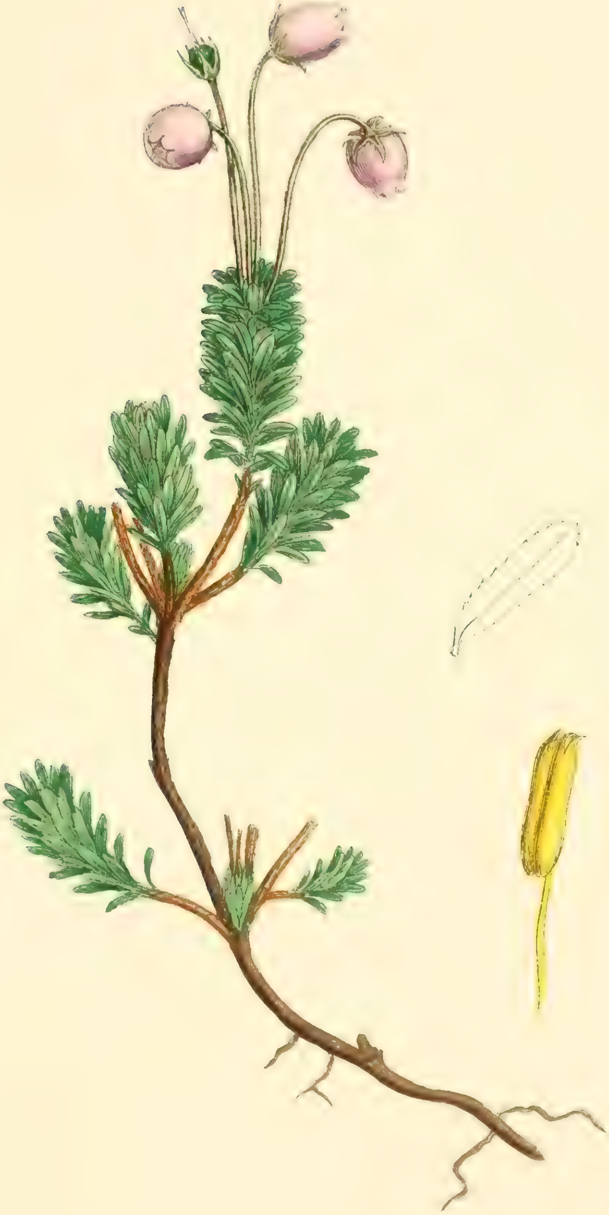
B. 365.

Loiseleuria procumbens. Trailing Azalea.



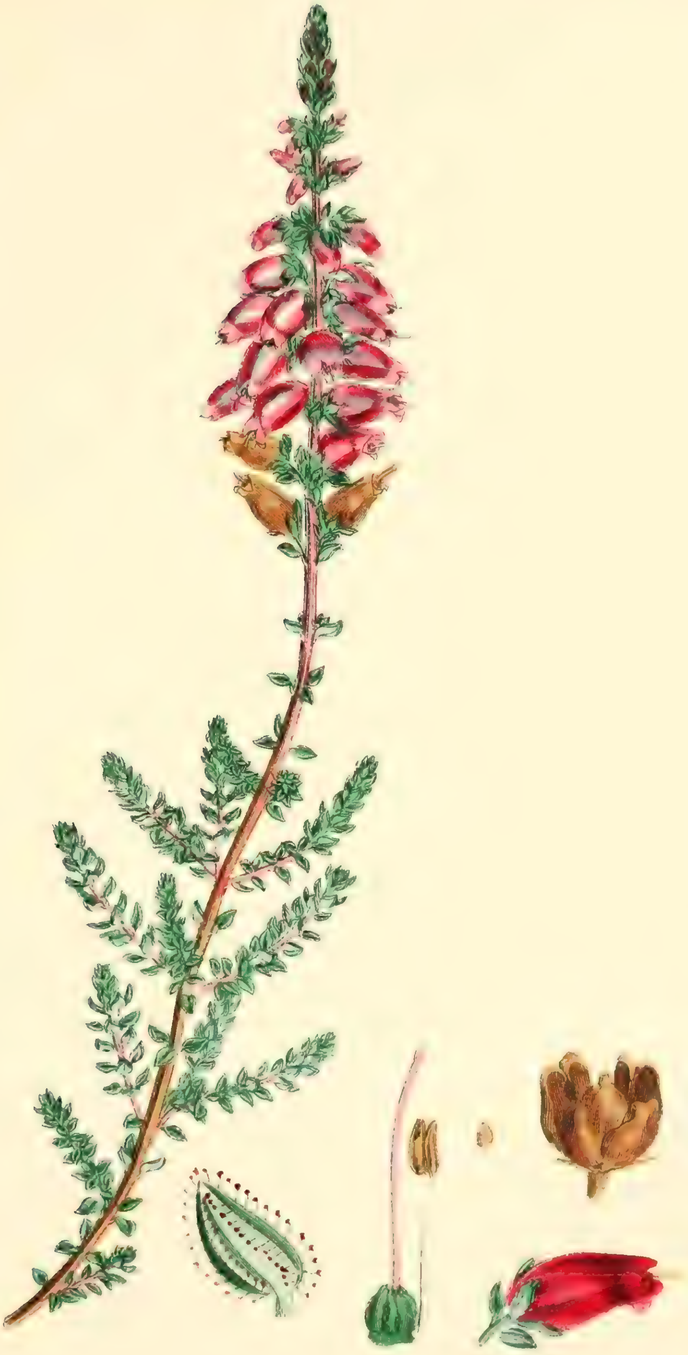
E.B. 35.

Menziesia polifolia. St. Dabeoc's Heath.



E. B. 2469.

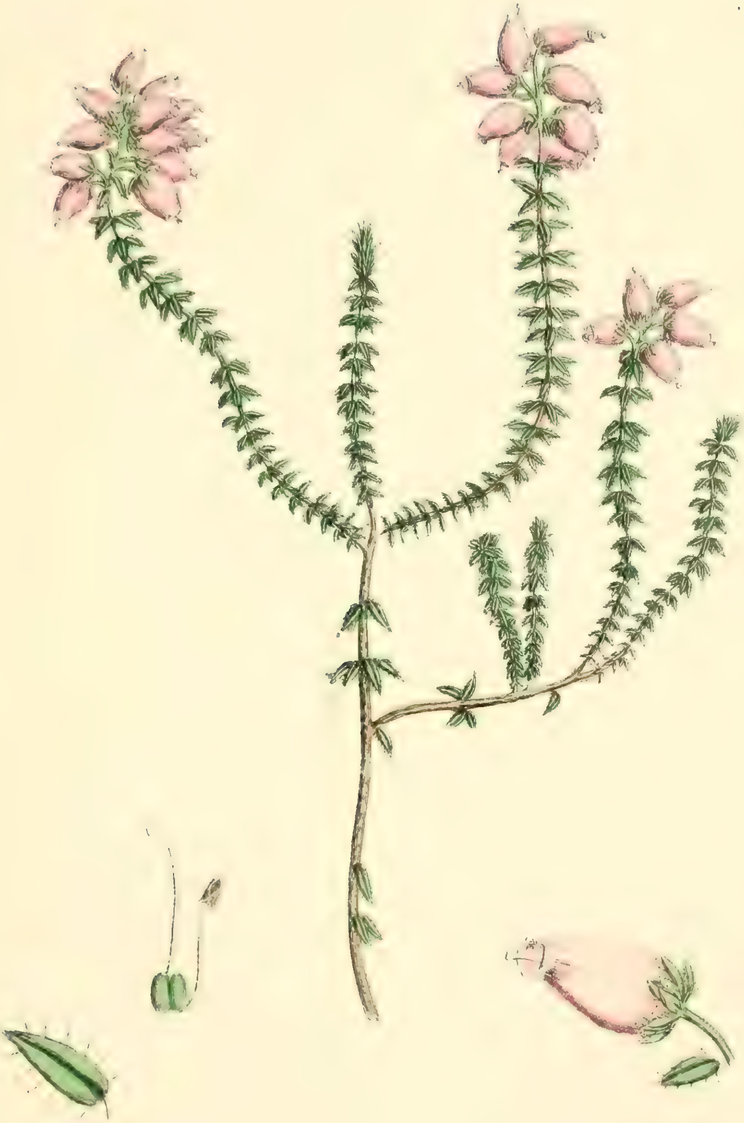
Menziesia caerulea. Yew-leaved Menziesia.



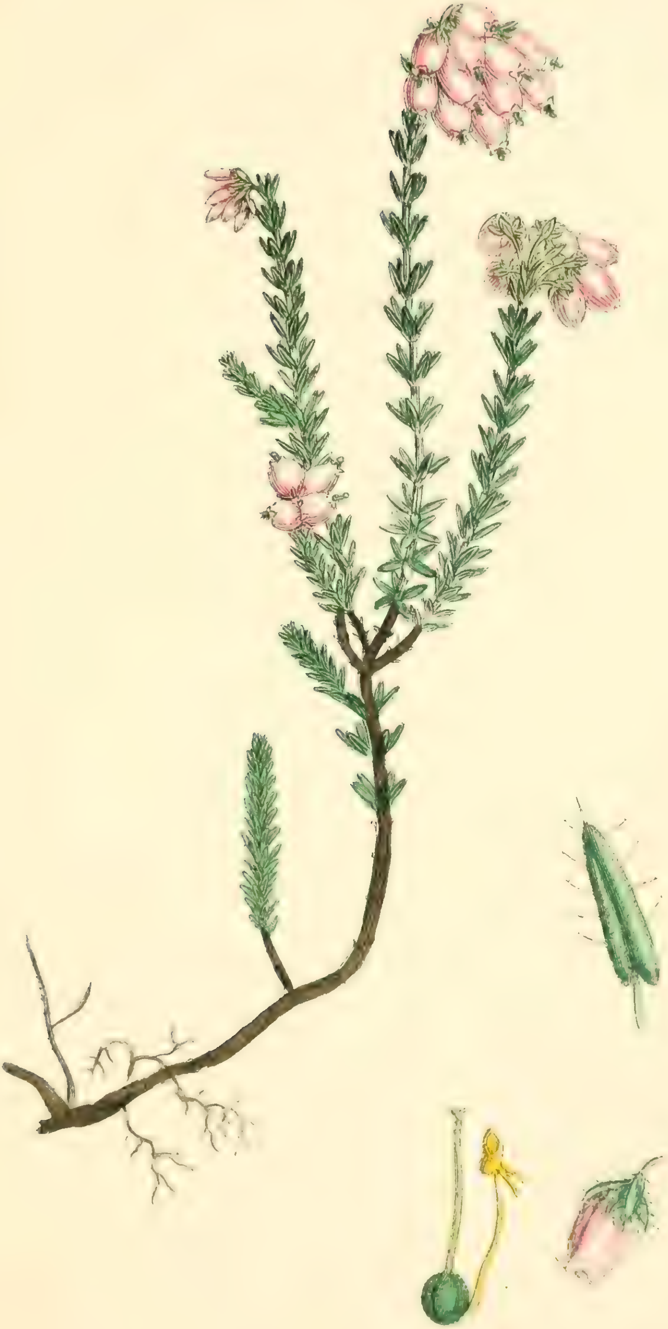
E. B. S. 2618.

Erica ciliaris.   Fringed-leaved Heath.

DCCCLXXXVIII.

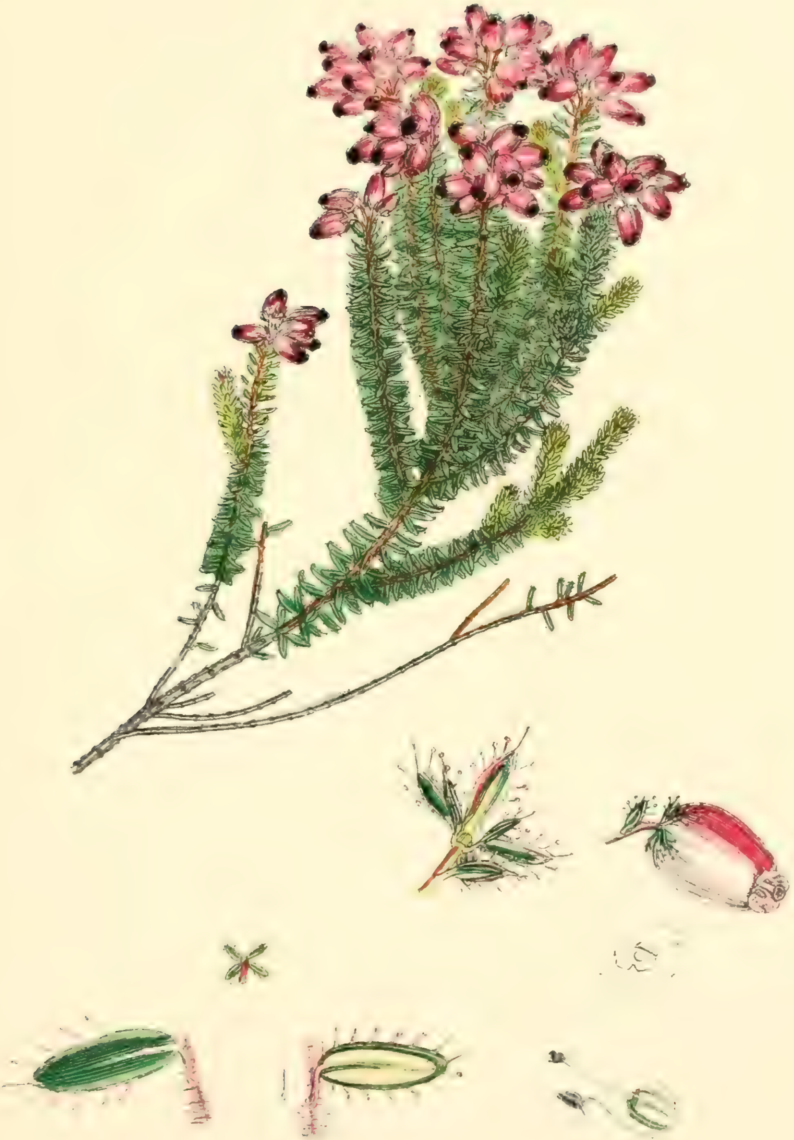


Erica Tetralici-ciliaris. Hybrid between Fringed-leaved and Cross-leaved Heaths.



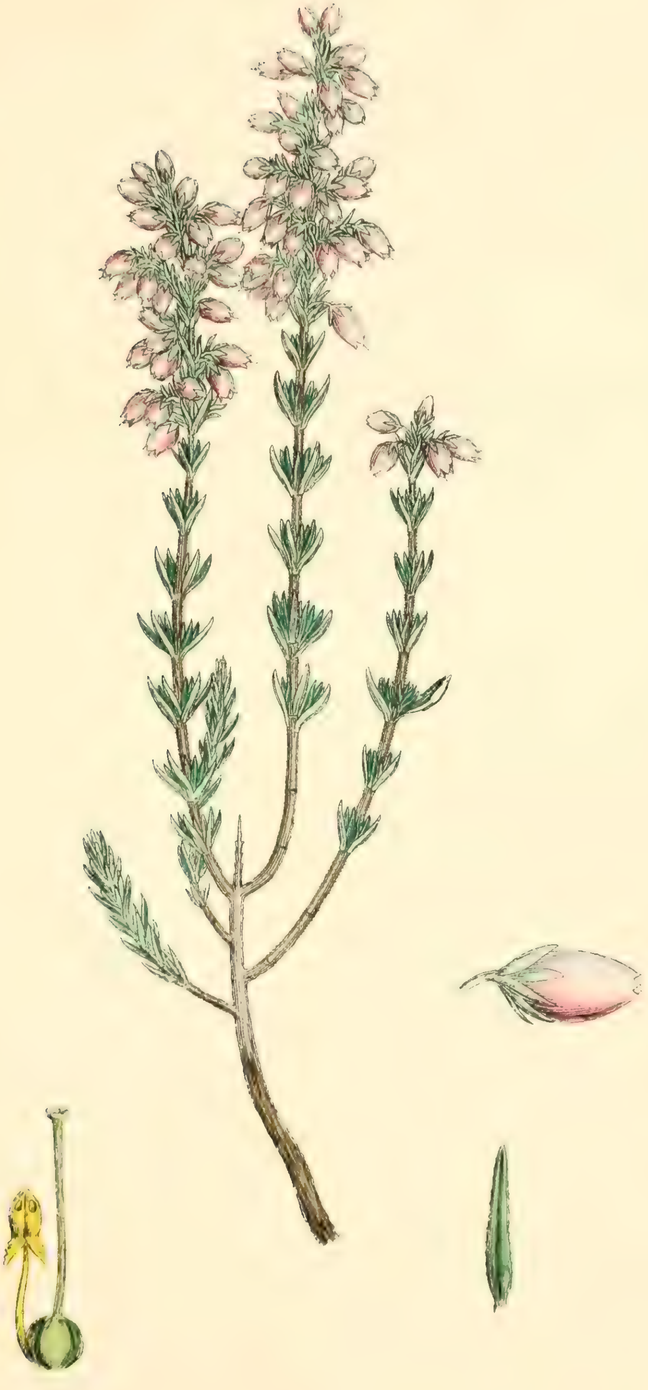
. 1014.

Erica eu-Tetralix.   Cross-leaved Heath.



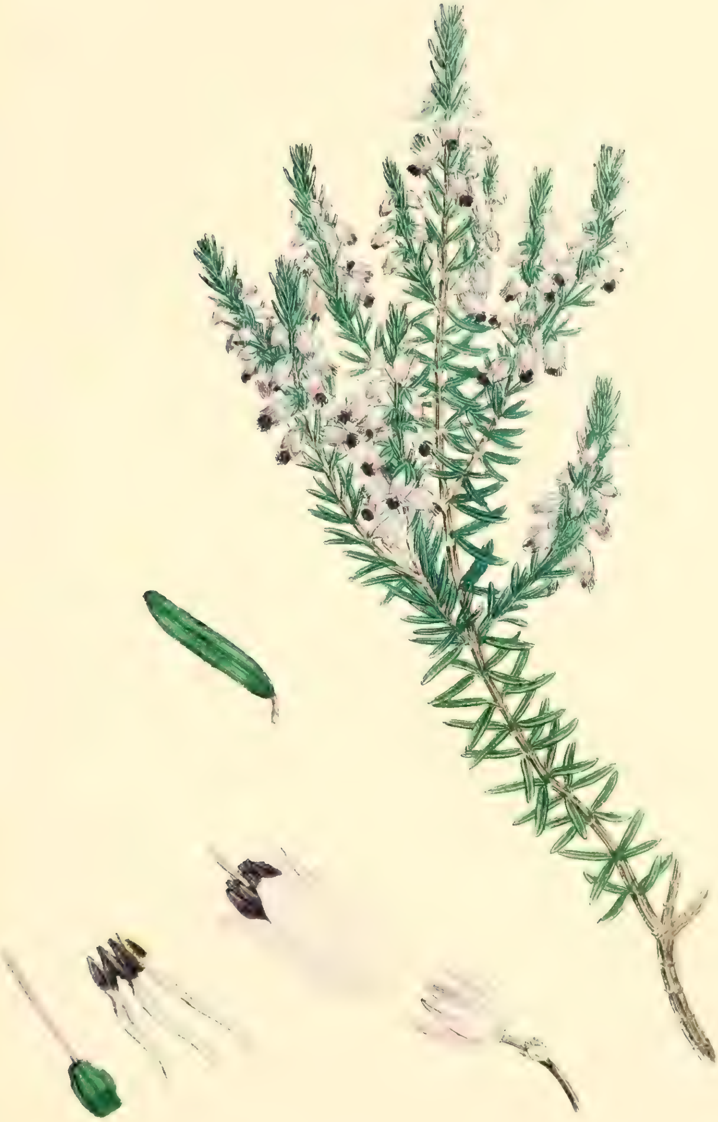
E. B. S. 2900.

Erica Mackaiana. Mackay's Heath.



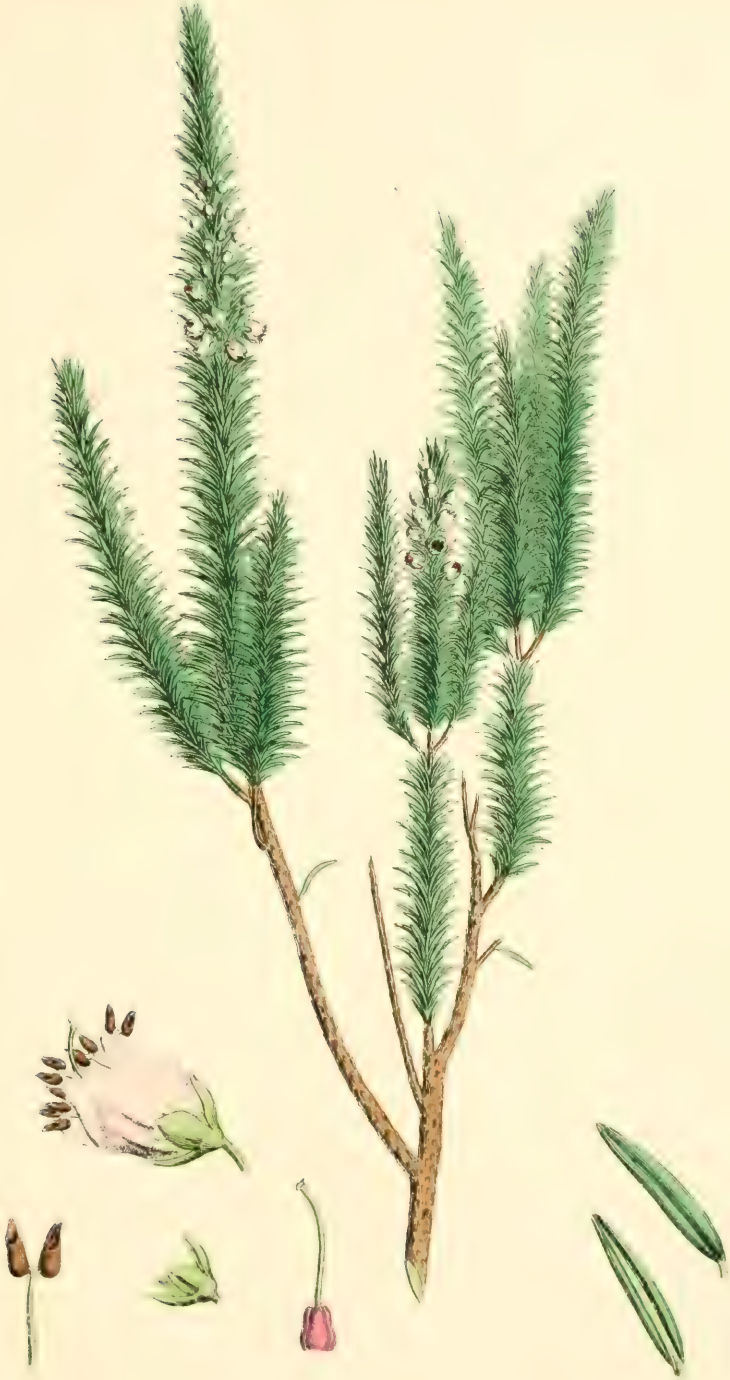
.*B.* 1015.

Erica cinerea. Fine-leaved Heath.

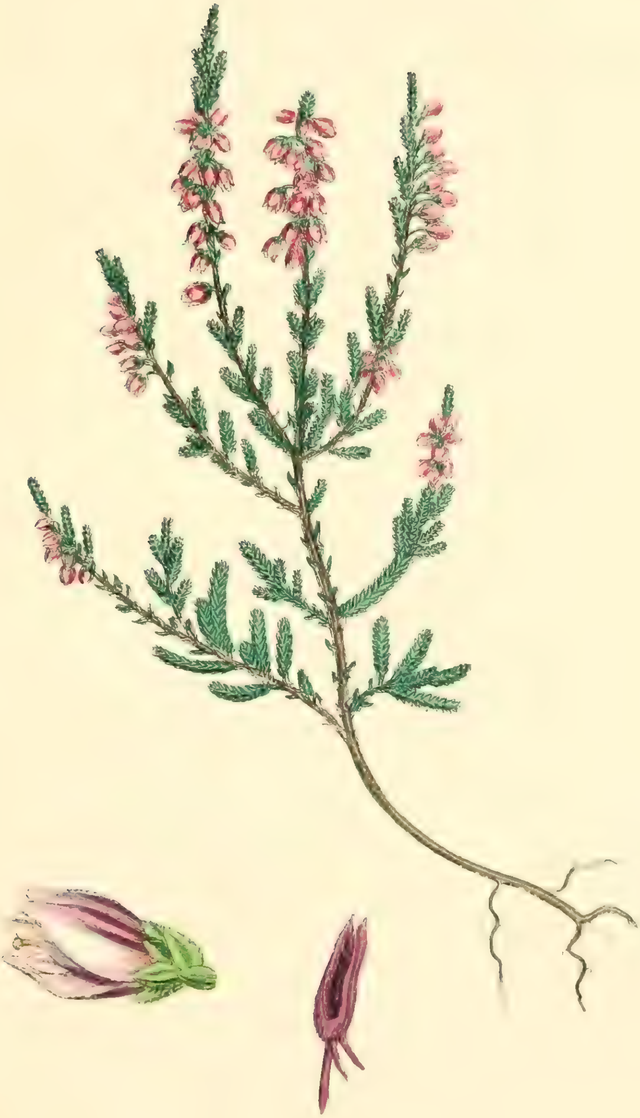


E.B.S. 2774.

Erica Hibernica. Irish Heath.

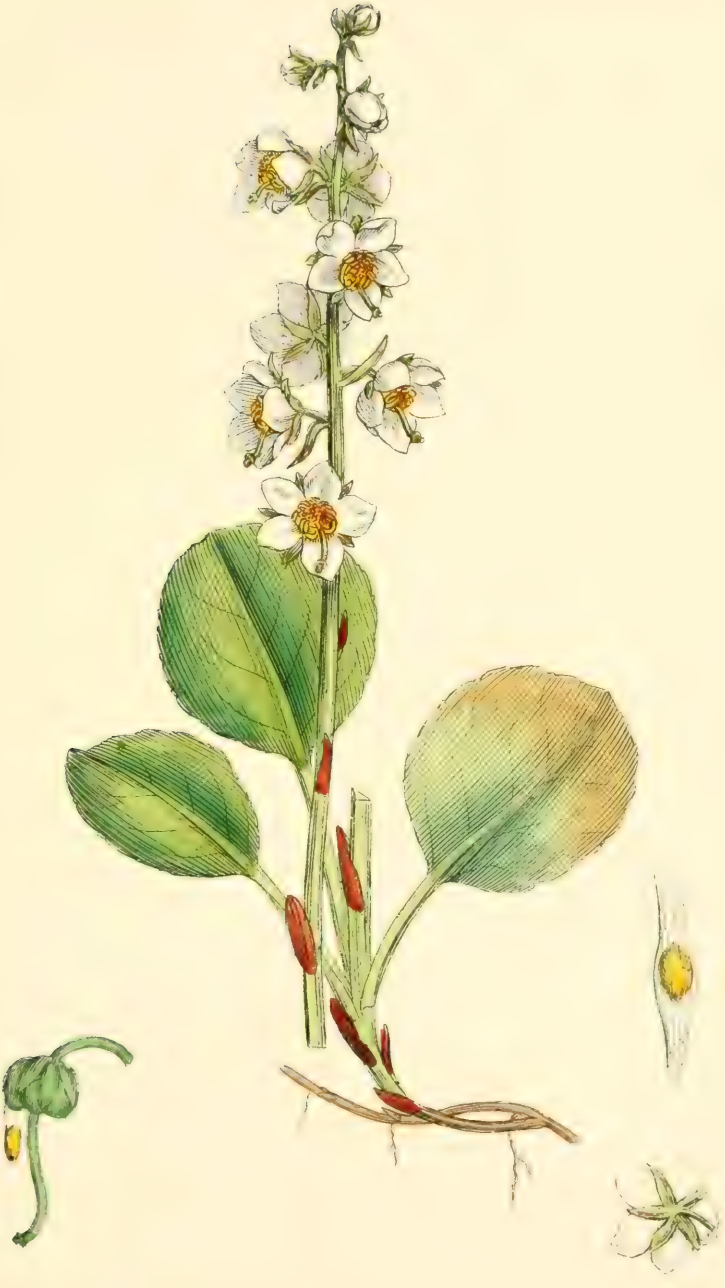


Erica vagans. Cornish Heath.



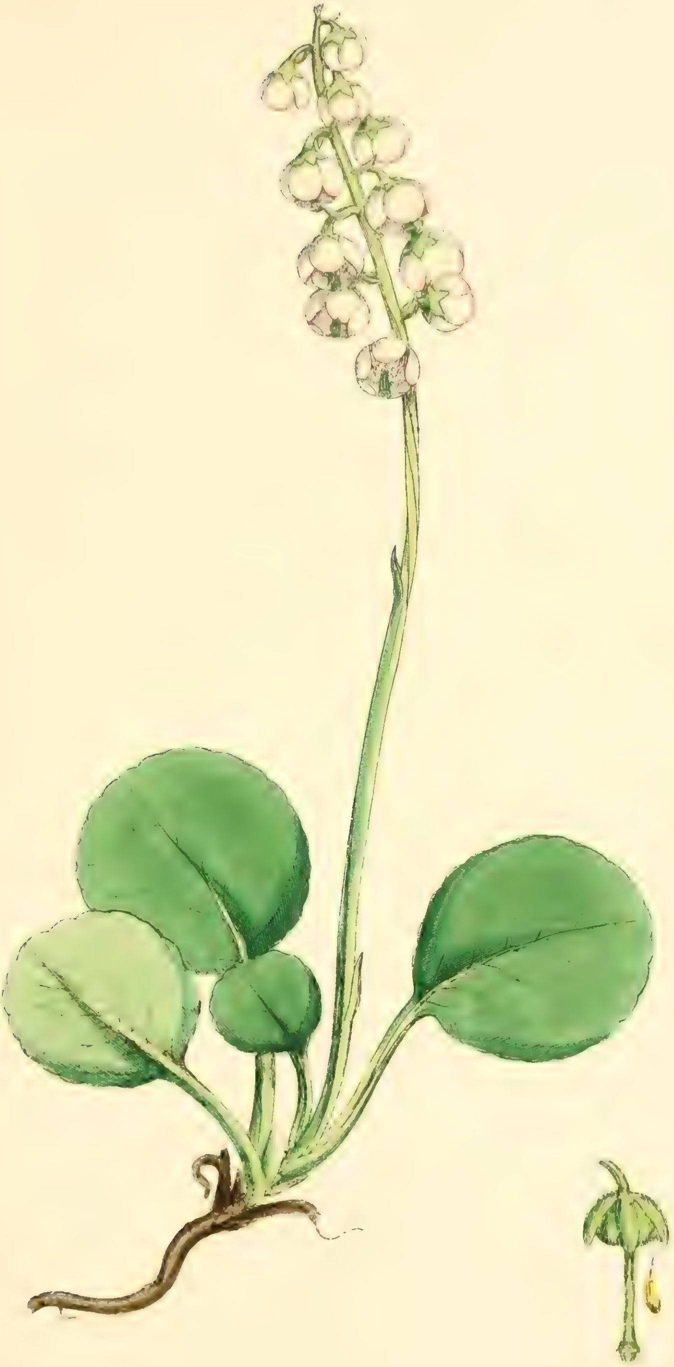
B. 1013.

Calluna vulgaris. Common Ling.



E. B. 213.

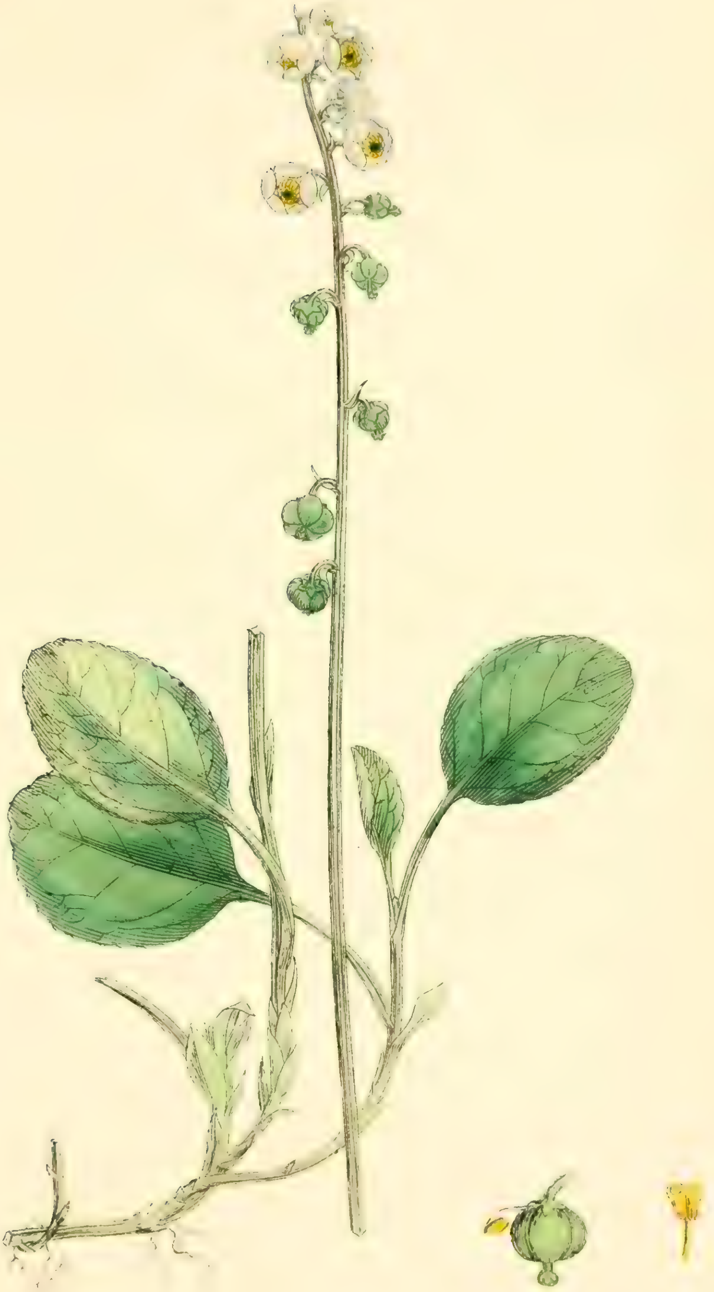
Pyrola rotundifolia, var. genuina. Round-leaved Winter-green, var. *α*.



E.B. 1945.

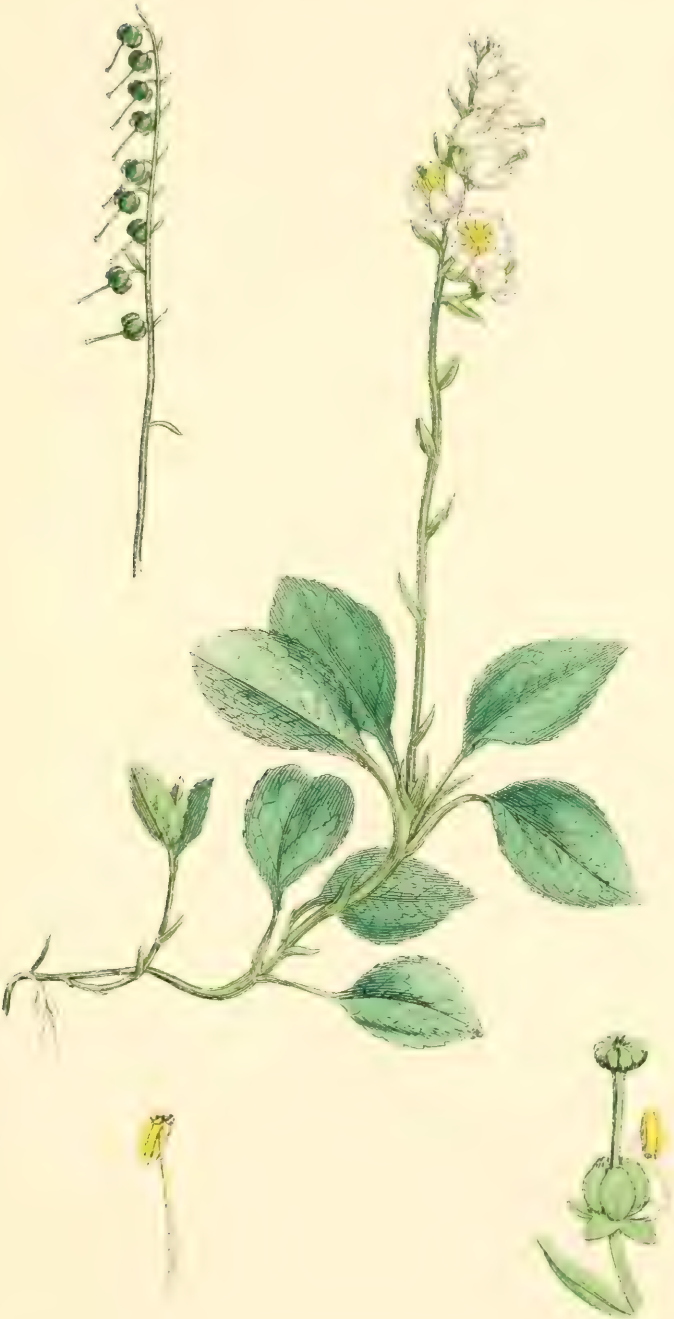
Pyrola media. Intermediate Winter-green.

DCCCXCVIII.



E B. 2543.

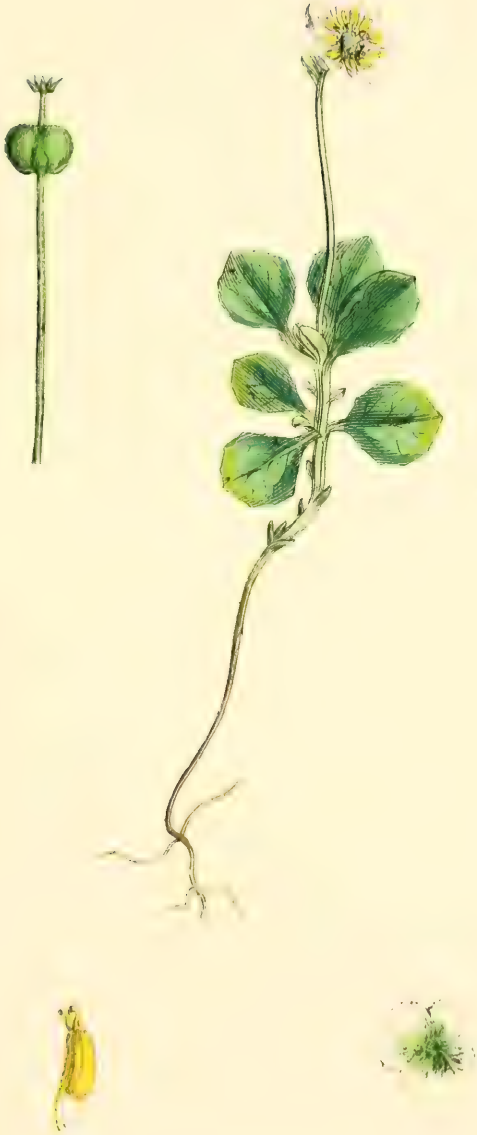
Pyrola minor. Lesser Winter-green.



. 517.

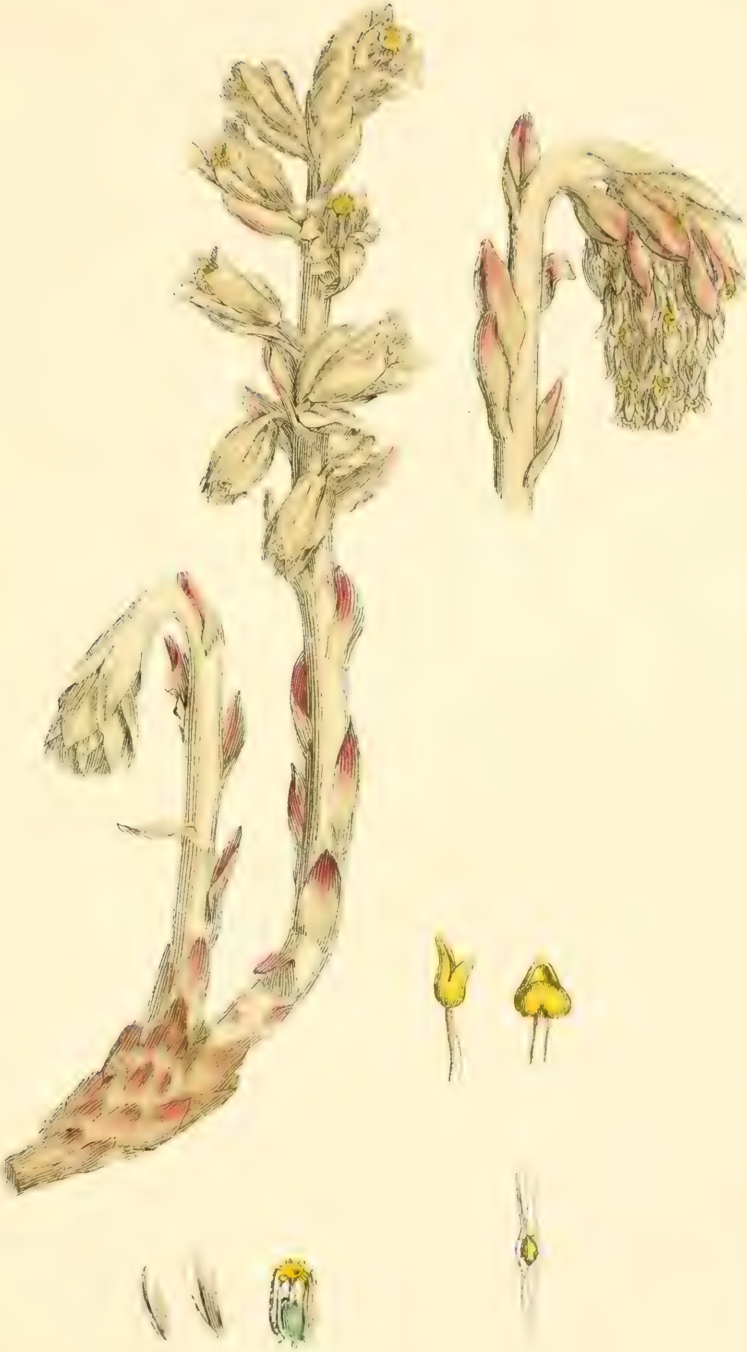
Pyrola secunda. Serrated Winter-green.

DCCCC.



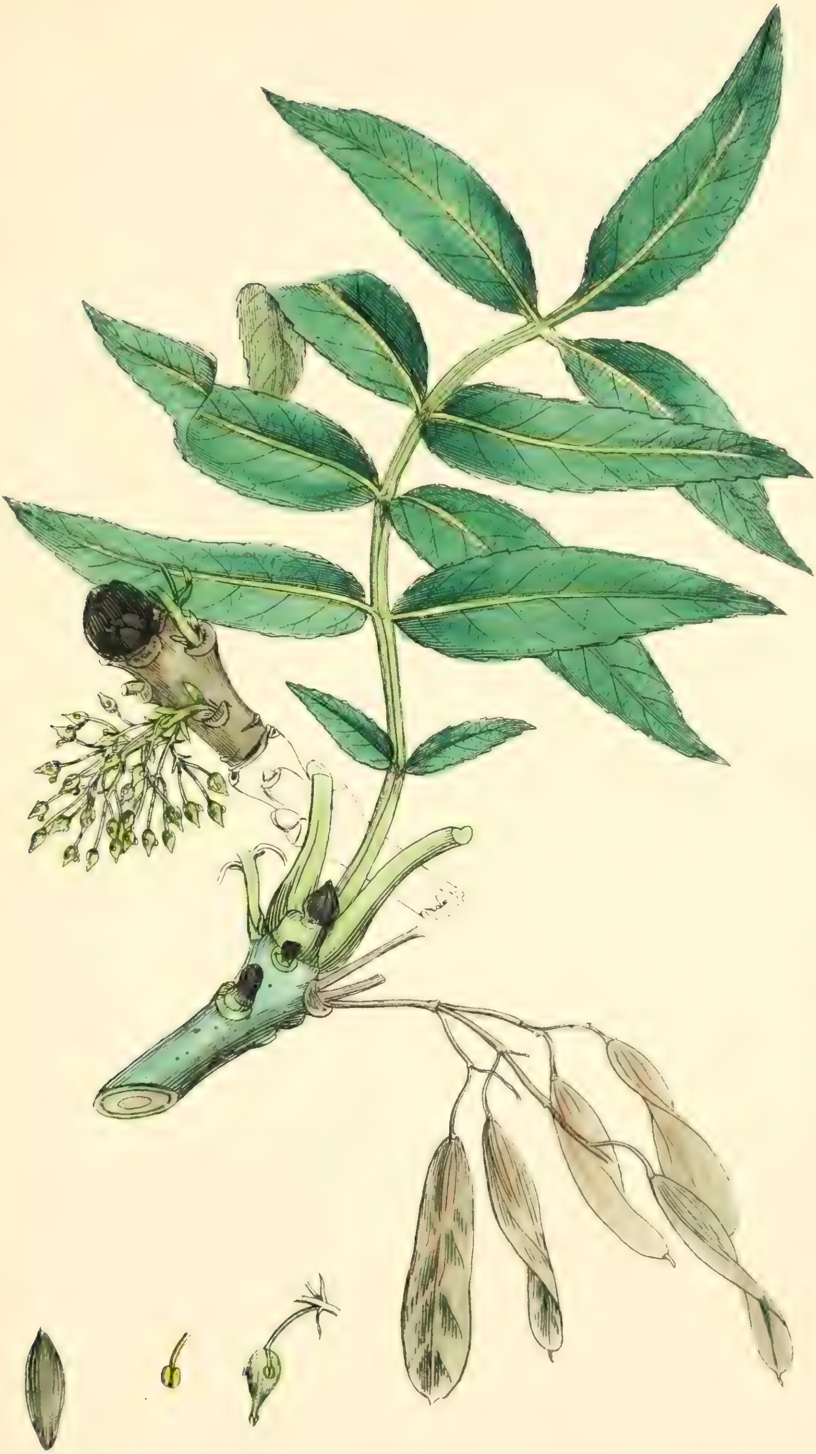
.*B*. 146.

Pyrola uniflora. Single-flowered Winter green.



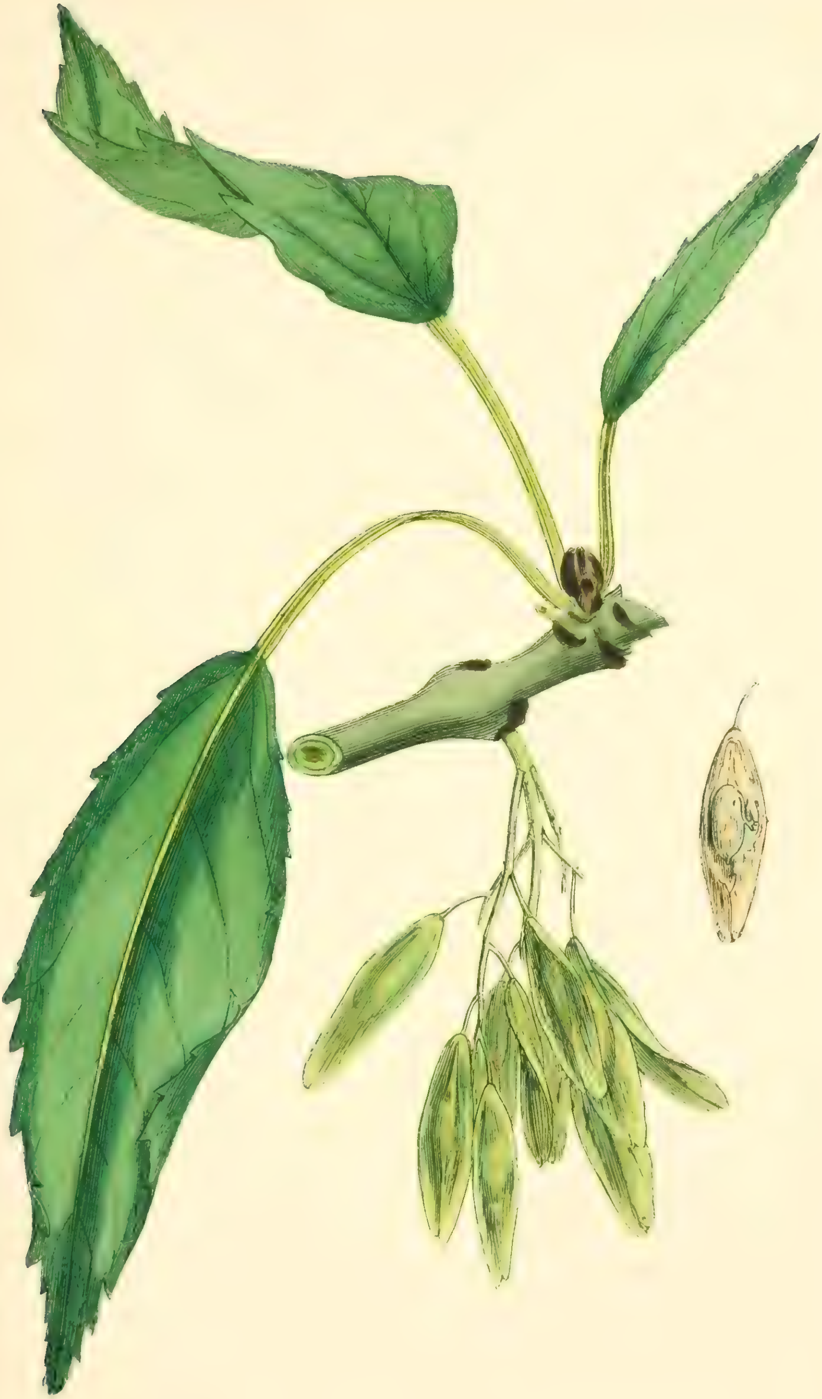
69.

Monotropa Hypopitys. Yellow Bird's-nest.



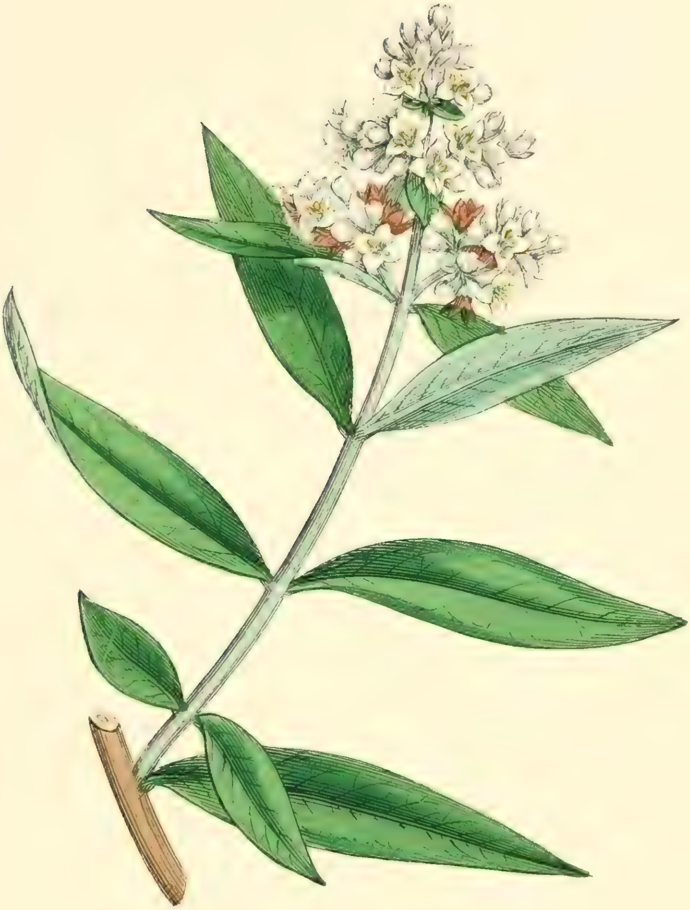
1692.

Fraxinus excelsior. Common Ash.



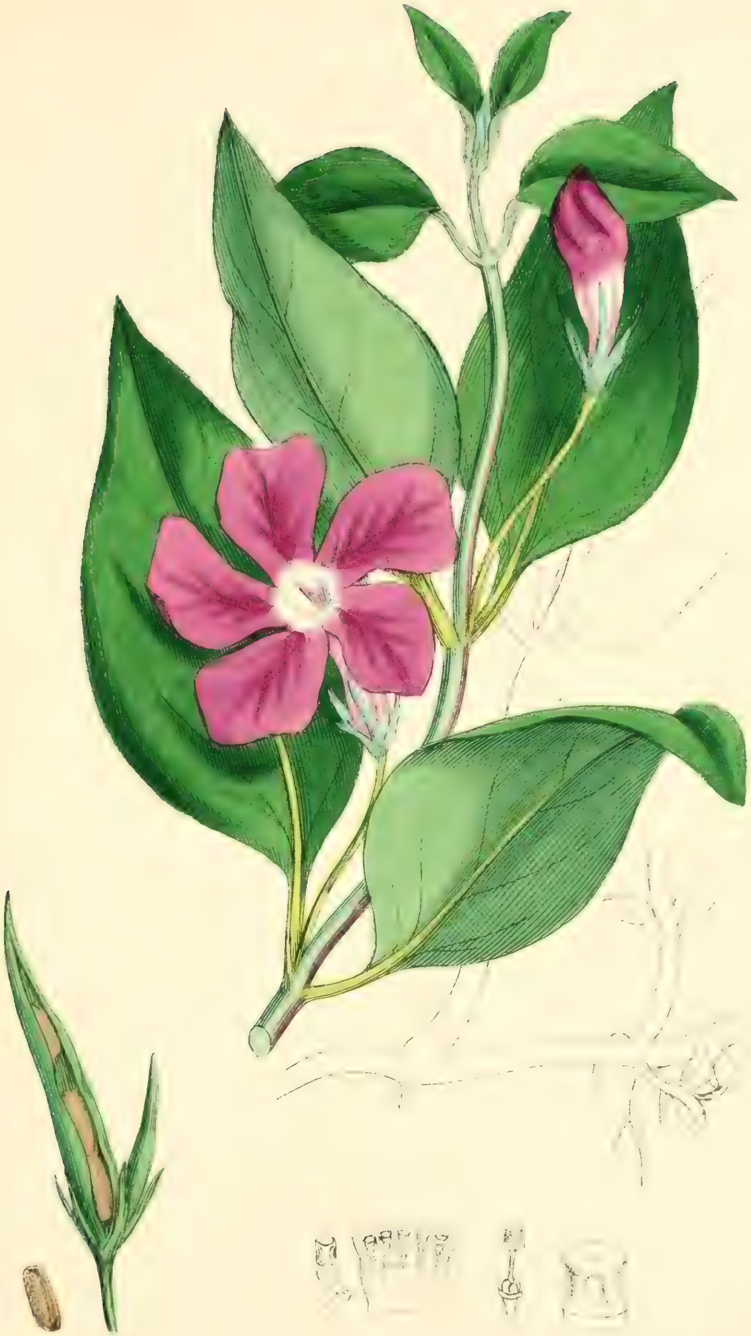
.*B.* 2476.

Fraxinus excelsior, heteropylla   Simple-leaved Ash.



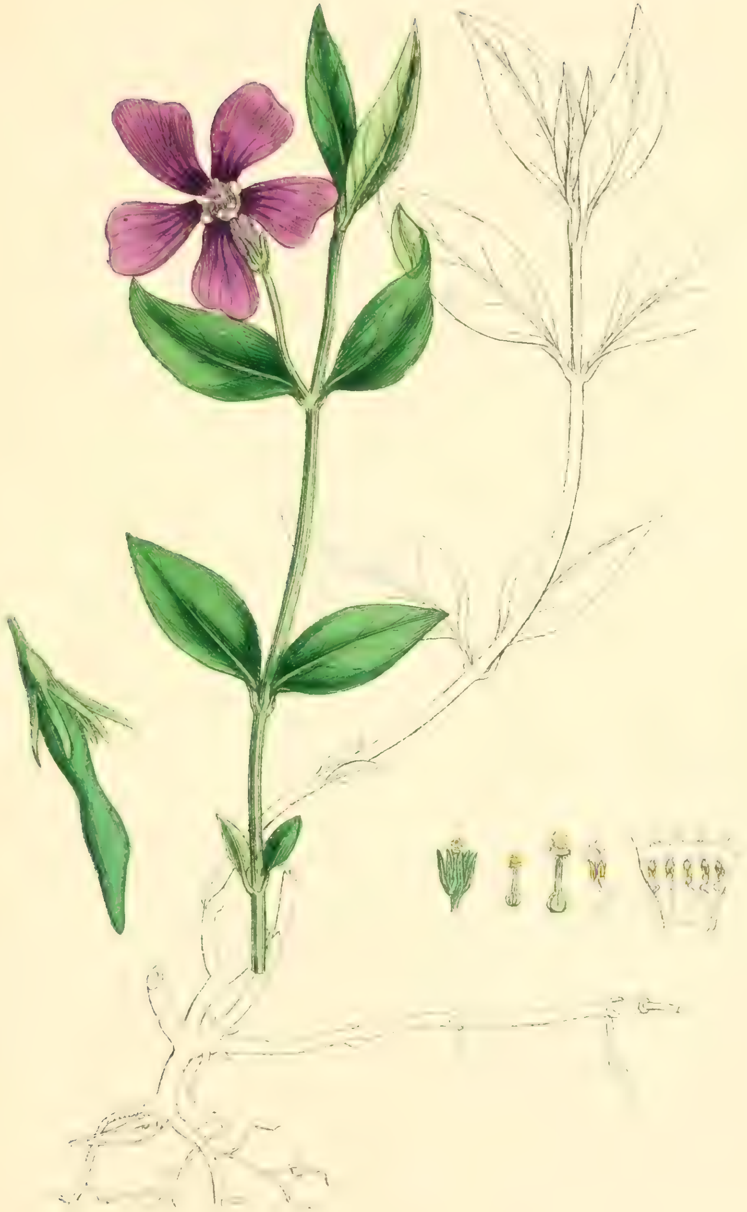
E. B. 764.

Ligustrum vulgare. Common Privet.



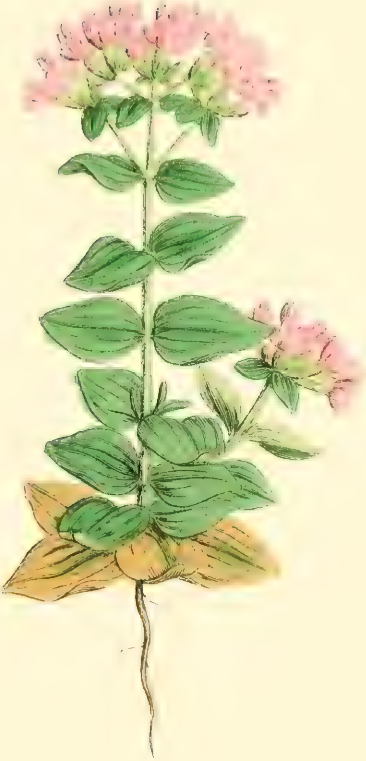
E.B. 514.

Vinca major. Greater Periwinkle.

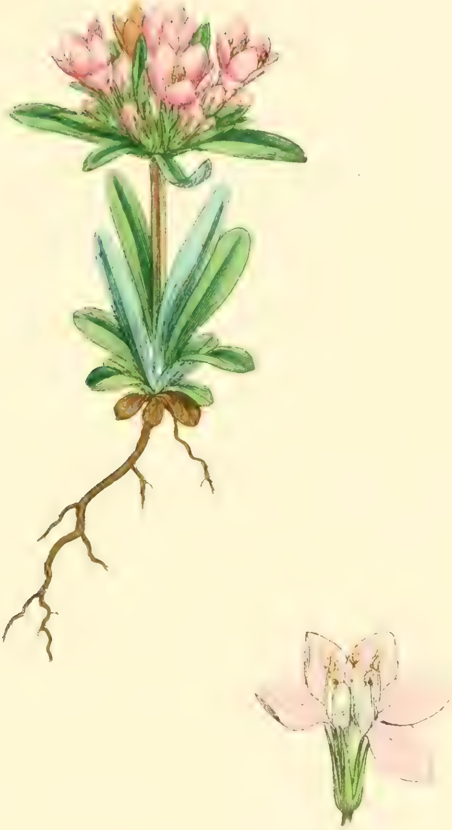


E. B. 917.

Vinca minor. Lesser Periwinkle.

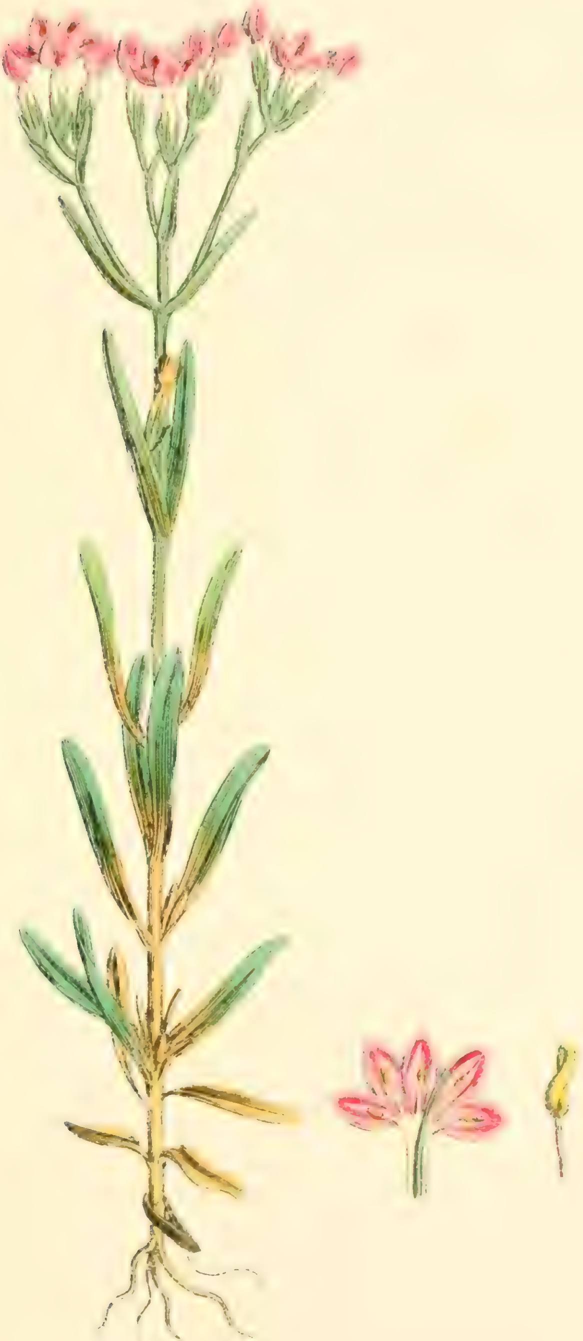


Erythræa latifolia. Broad leaved Centaury.

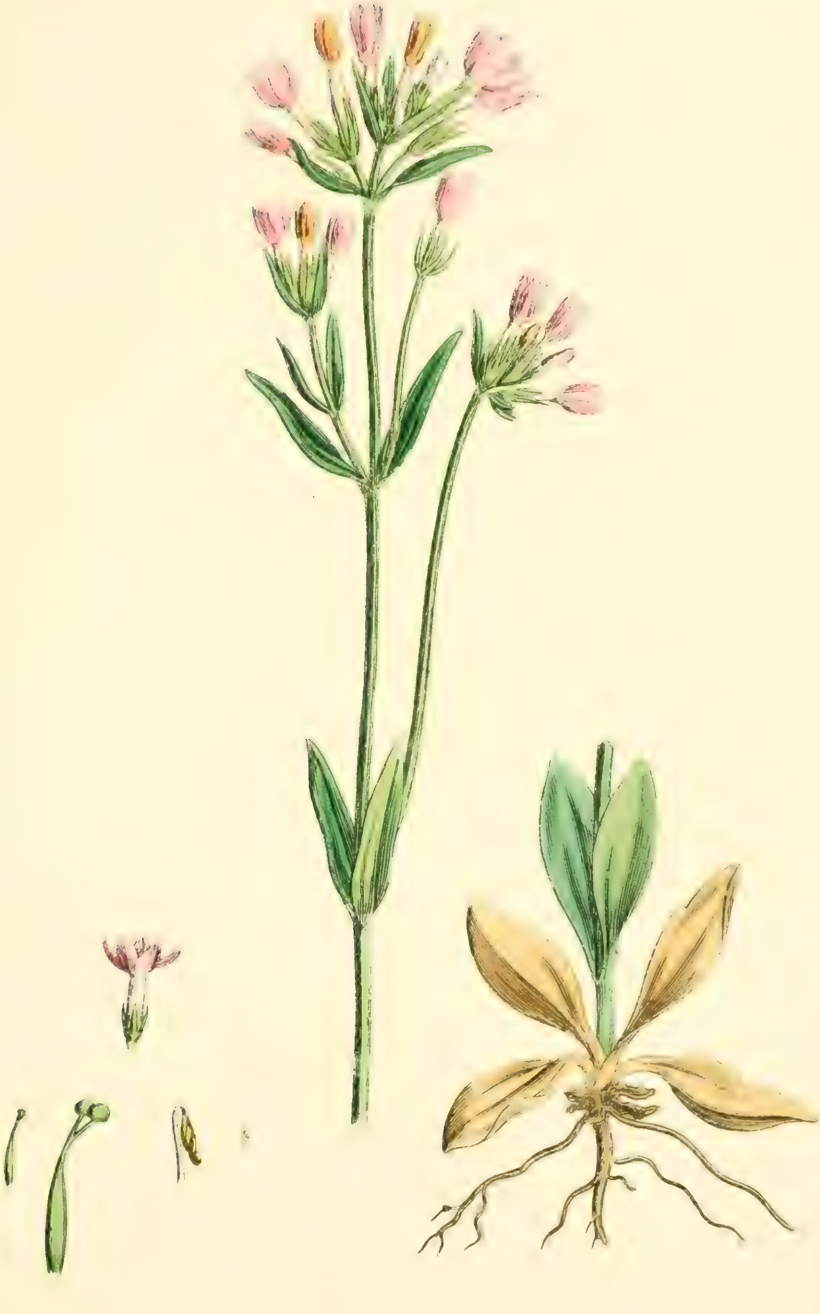


E. B. 2305.

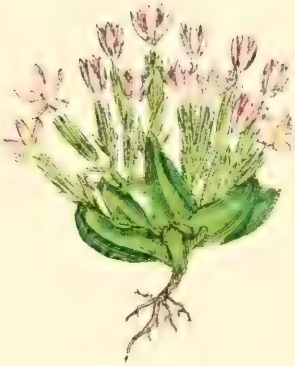
Erythræa littoralis. Narrow-leaved Centaury.



Erythræa littoralis. Narrow leaved Centaury.

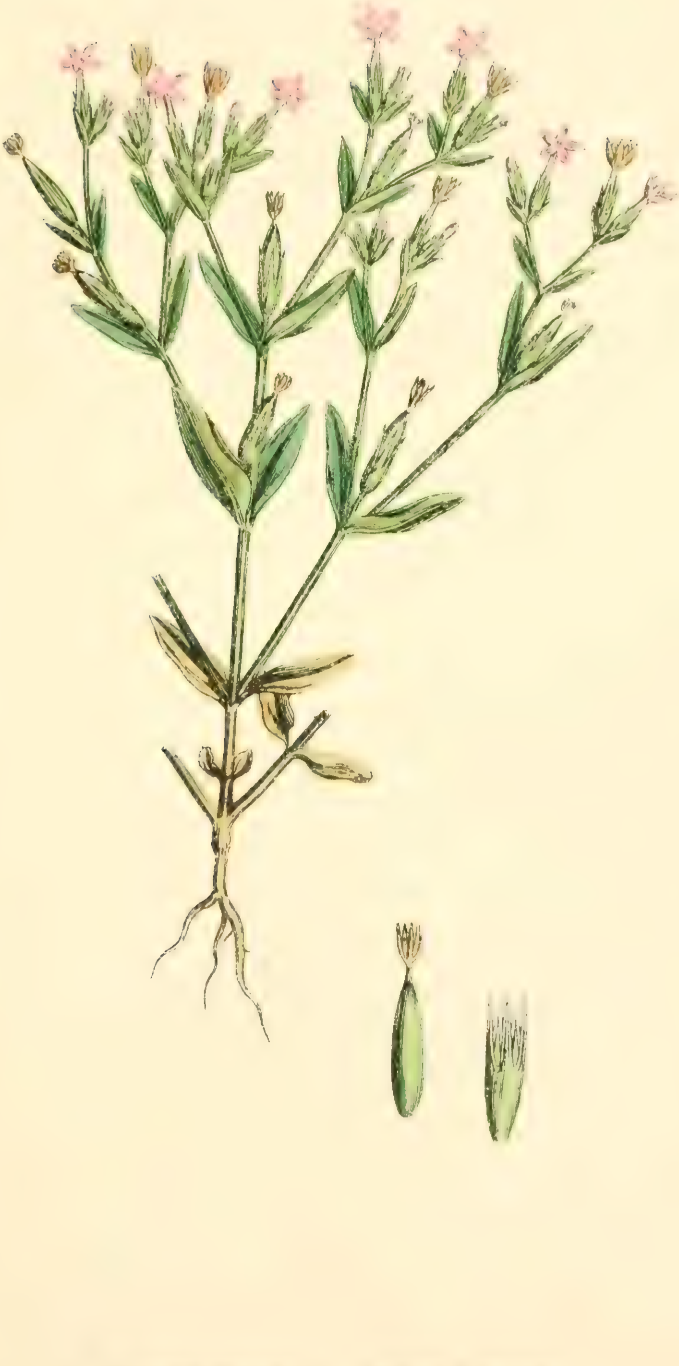


Erythræa Centaurium. Common Centaury.

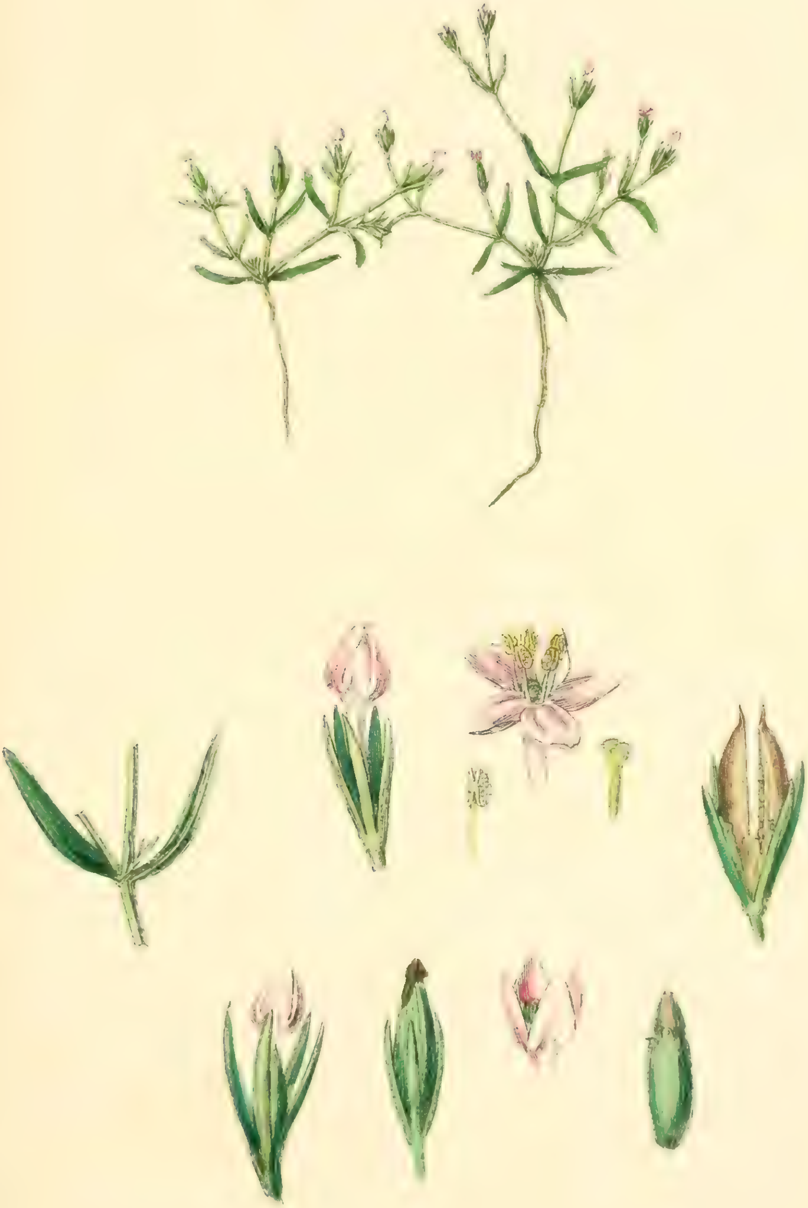


E.B. 458.

Erythræa pulchella. Slender Centaury.

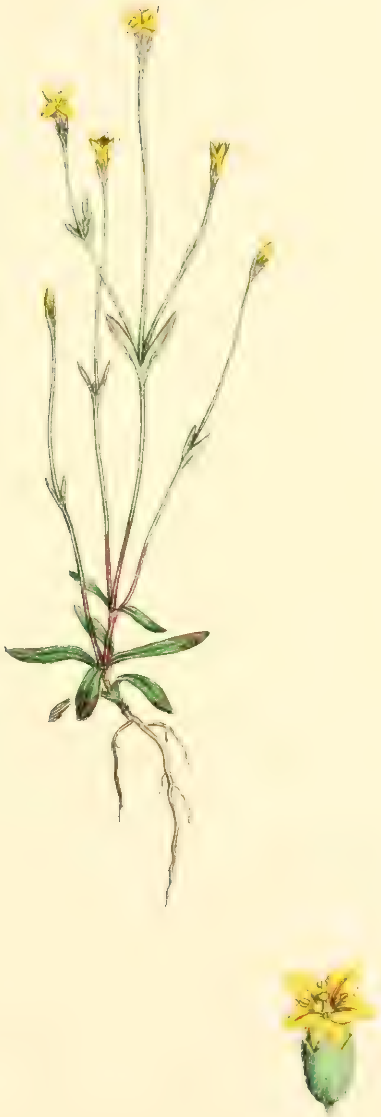


Erythræa pulchella.   **Slender Centaury.**



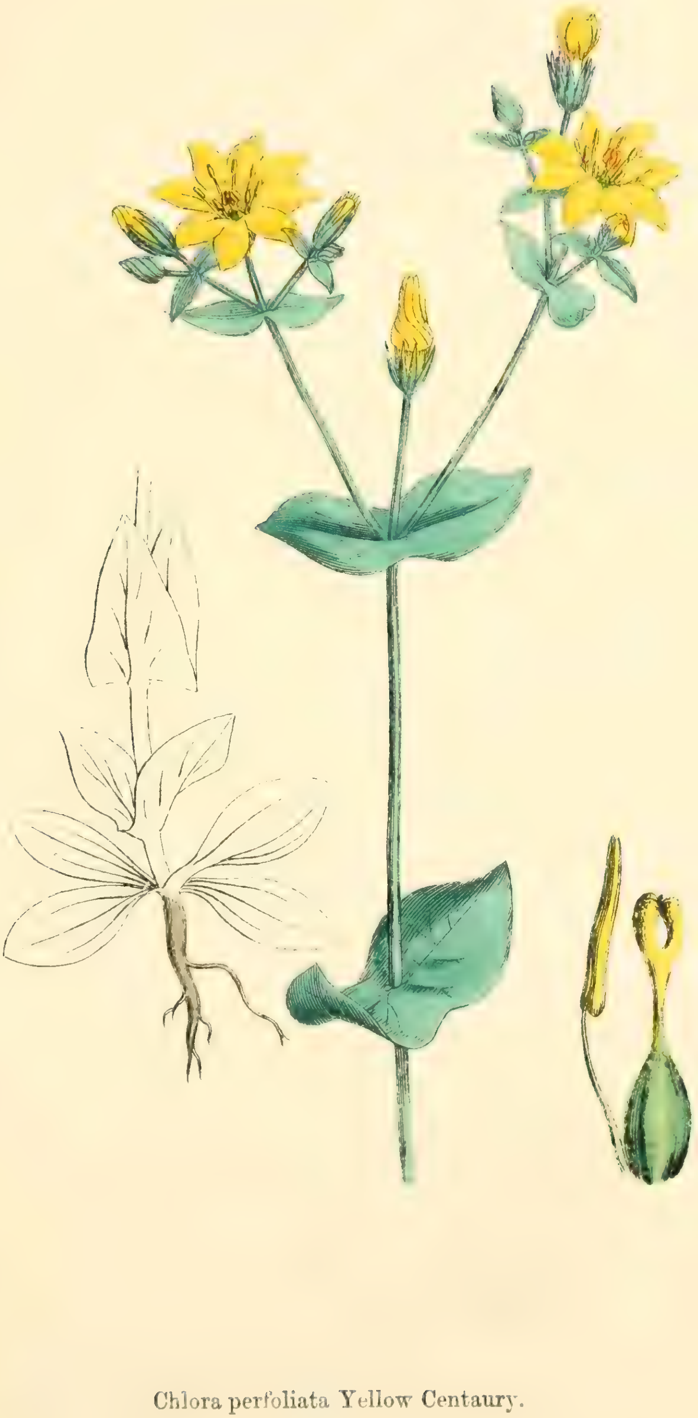
.B.S. 2994.

Cicendia pusilla. Least Cicendia.



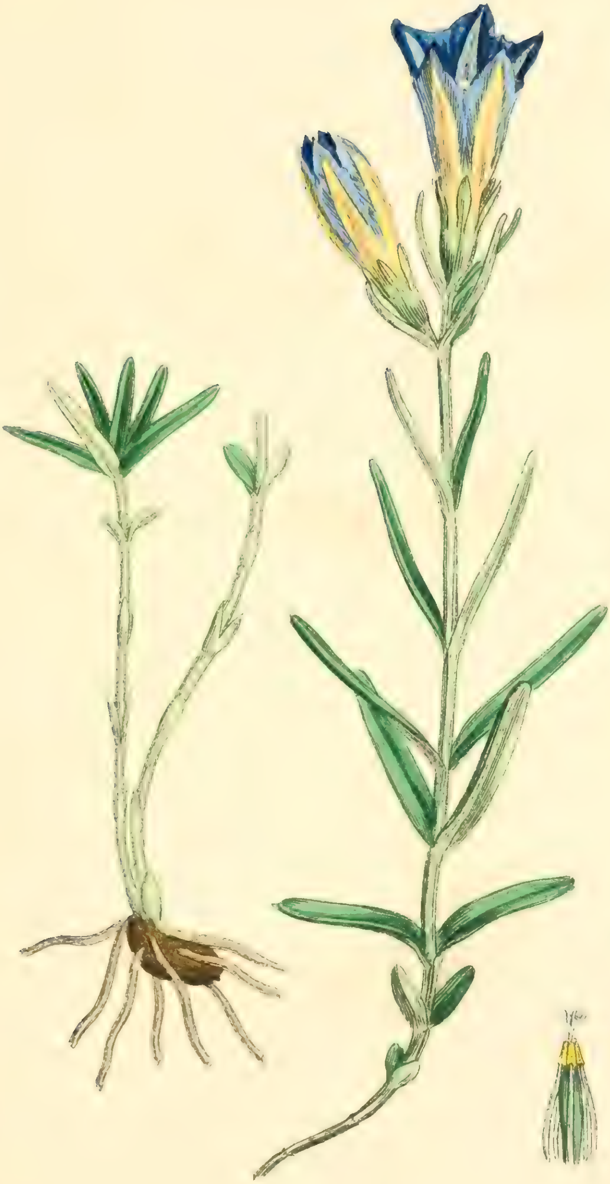
E. B. 235.

Cicendia filiformis. Slender Cicendia.



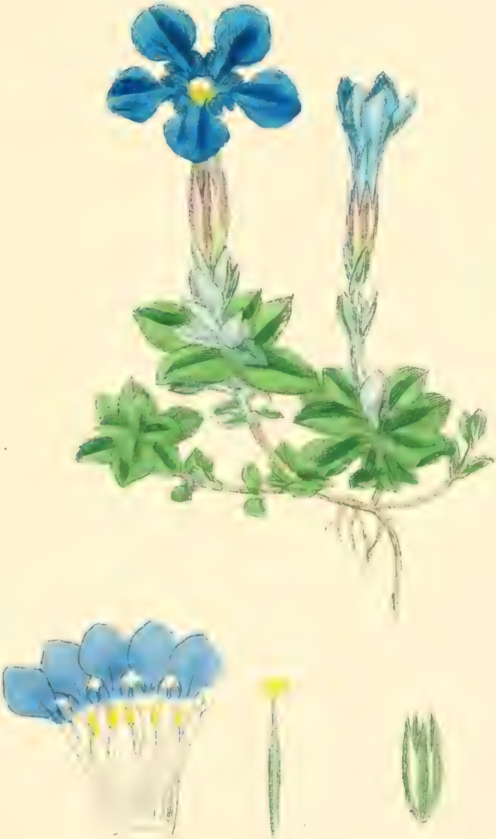
E. B. 60.

Chlora perfoliata Yellow Centaury.



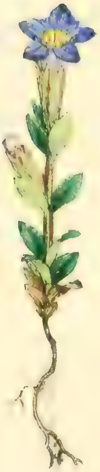
E. B. 20.

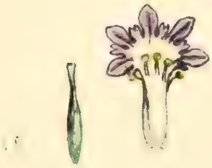
Gentiana Pneumonanthe. Calathian Violet.



E. B. 493.

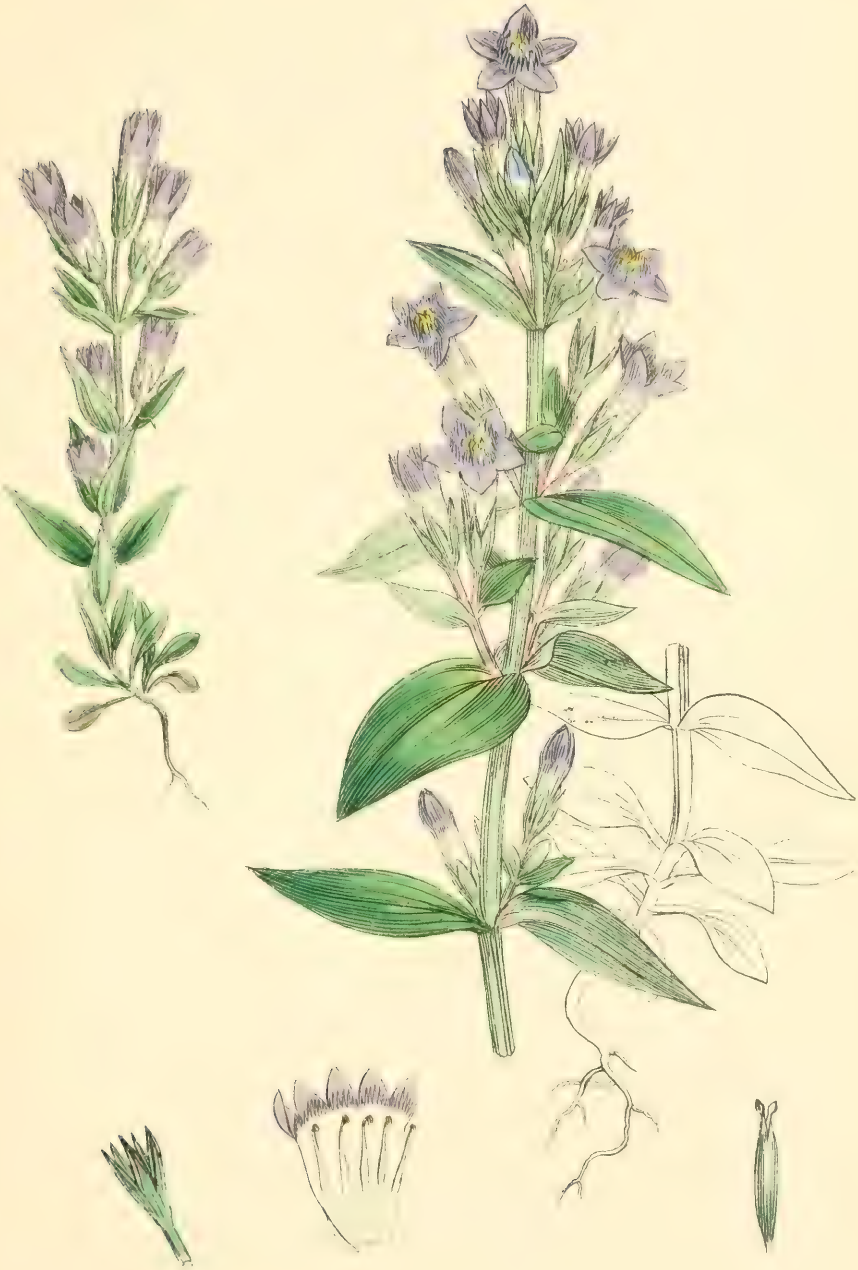
Gentiana verna. Spring Gentian.





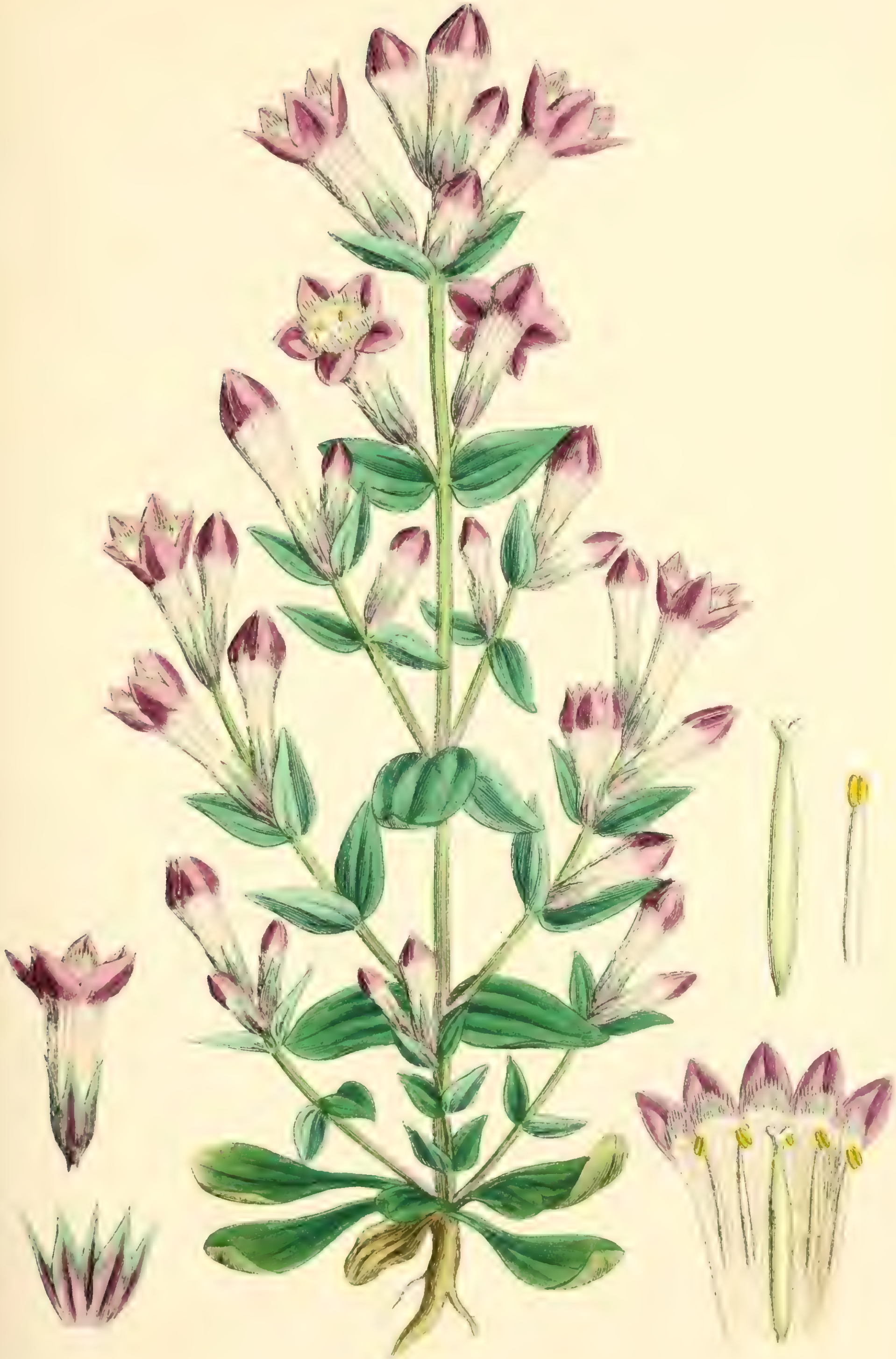
E. B. 896.

Gentiana nivalis.   Small Alpine Gentian.

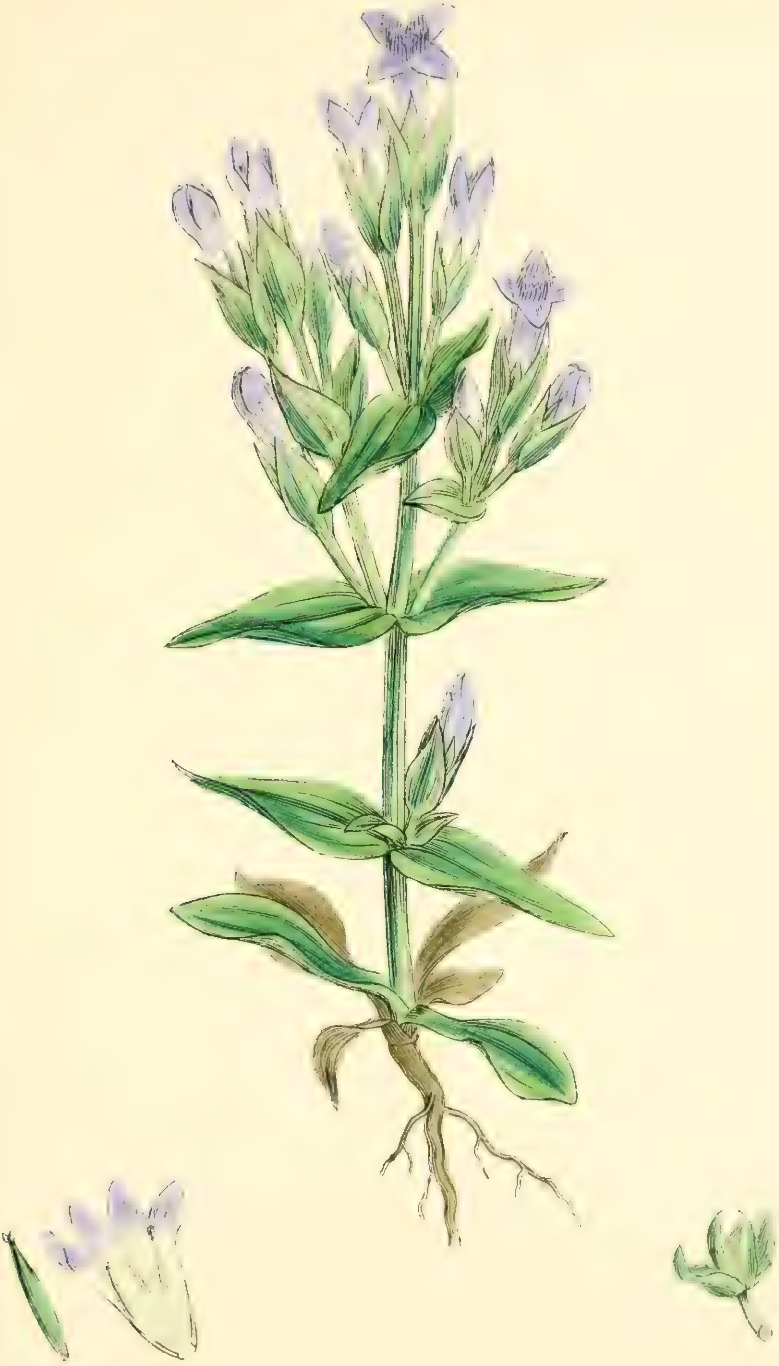


E. B. 236.

Gentiana eu-Amarella. Autumnal Gentian.

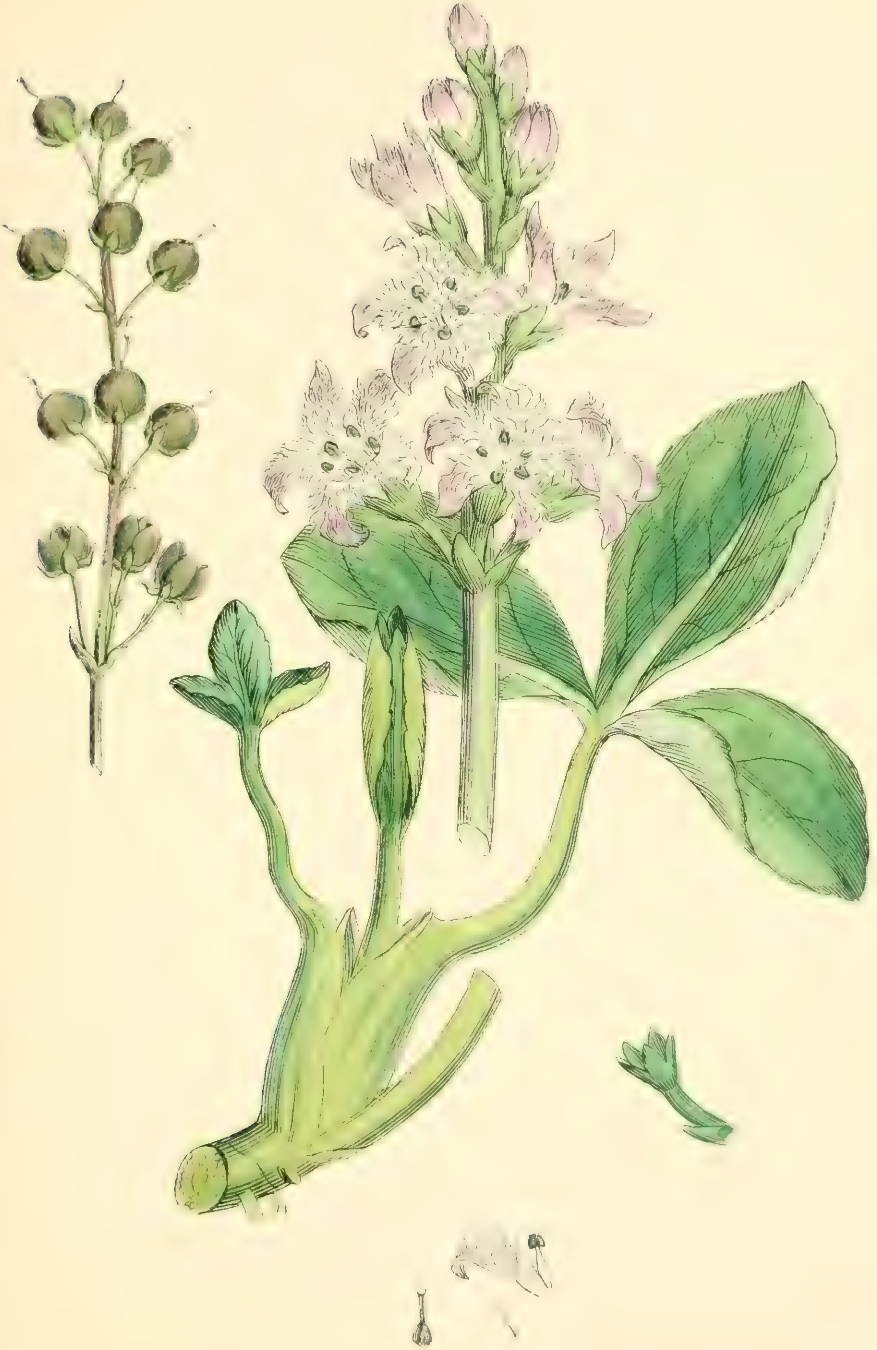


Gentiana Germanica. German Gentian.



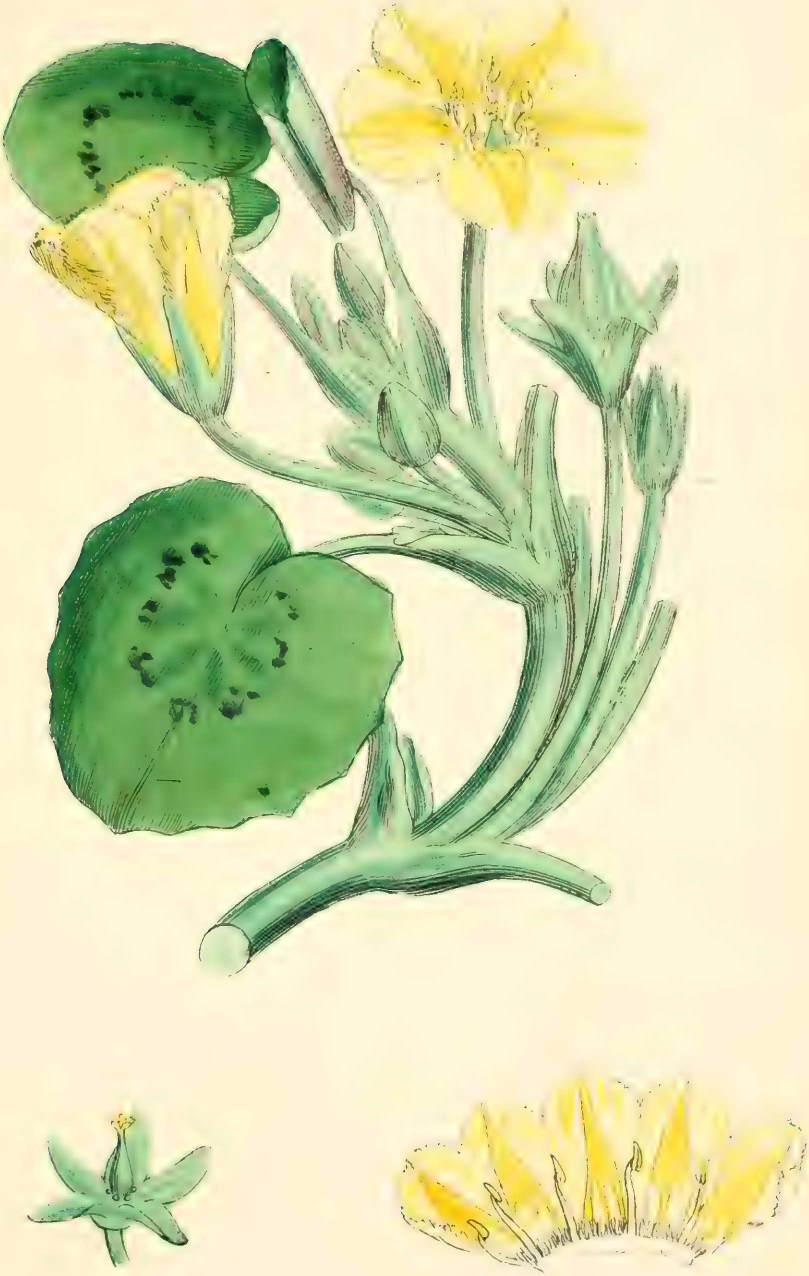
E. B. 237.

Gentiana campestris. Field Gentian.



E. B. 495.

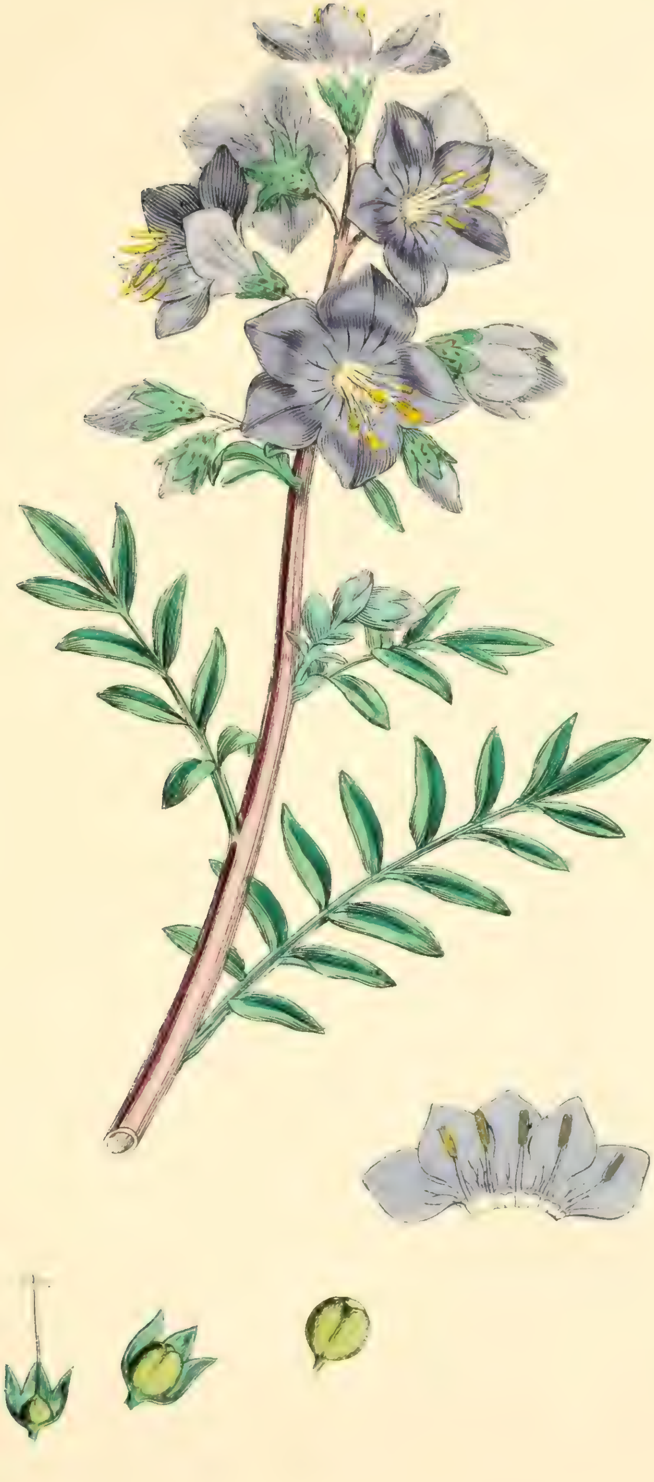
Menyanthes trifoliata. Common Buckbean.



E.B. 217.

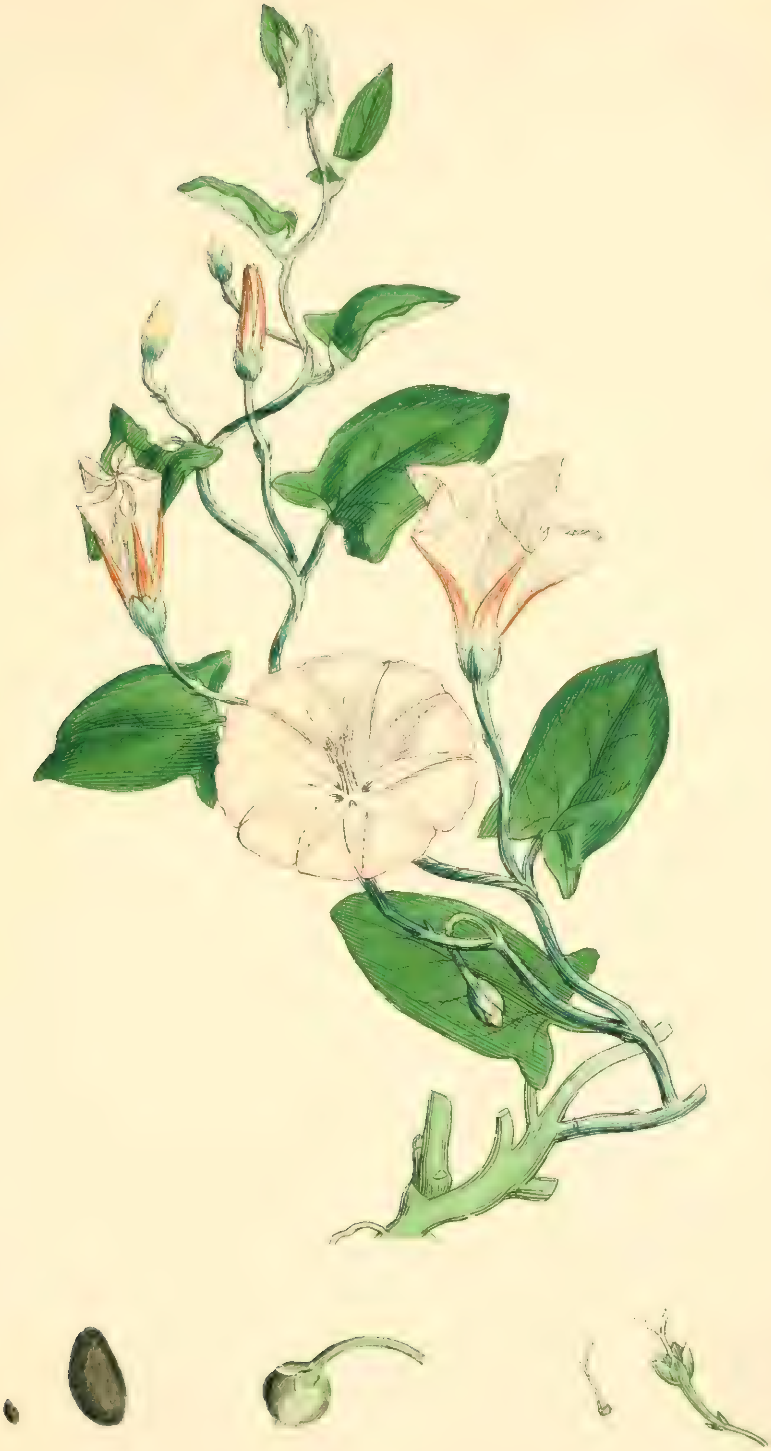
Limnanthemum nymphæoides.   Round-leaved Buckbean.

DCCCCXXII.



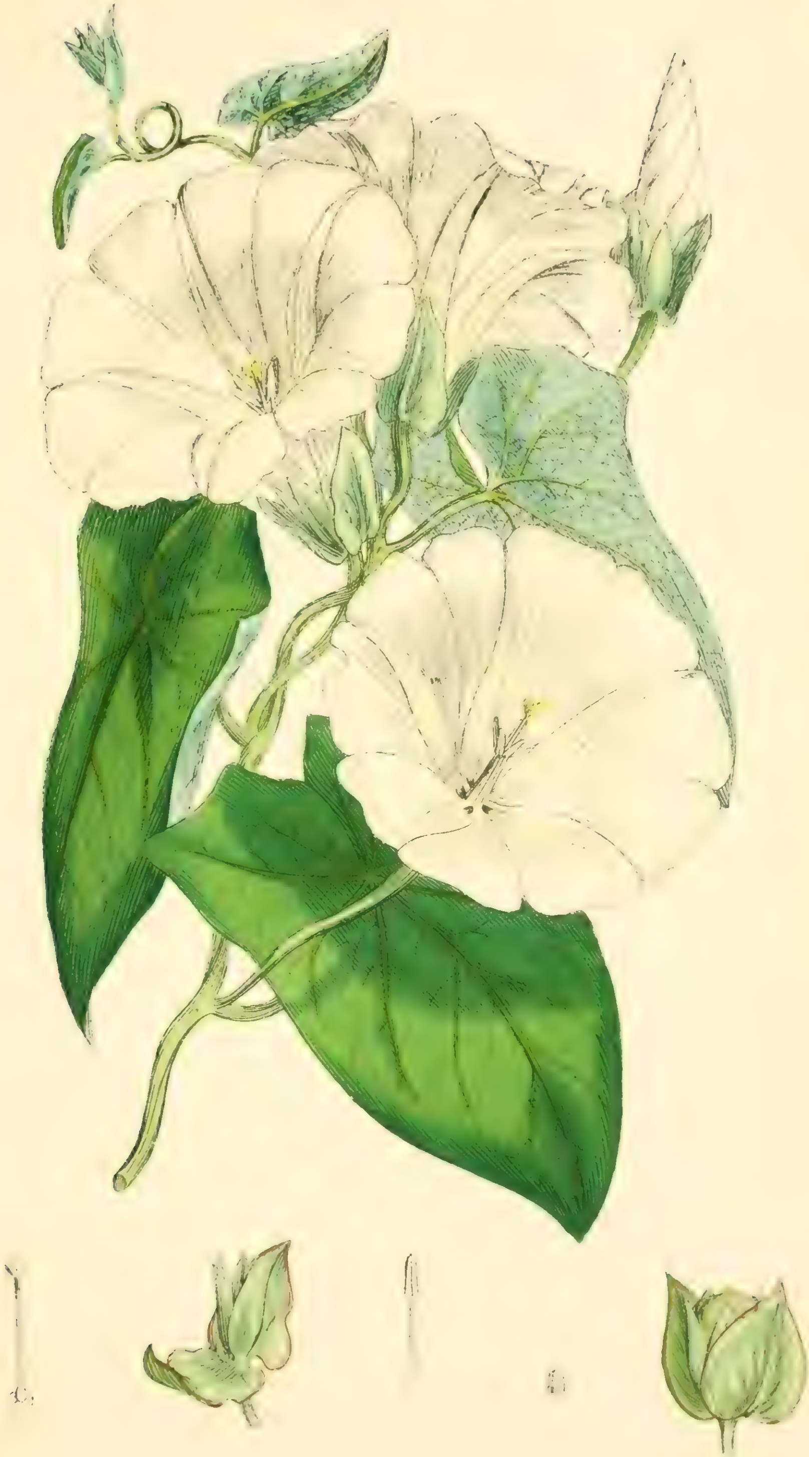
E. B. 14.

Polemonium cæruleum. Jacob's-ladder.



E.B. 312.

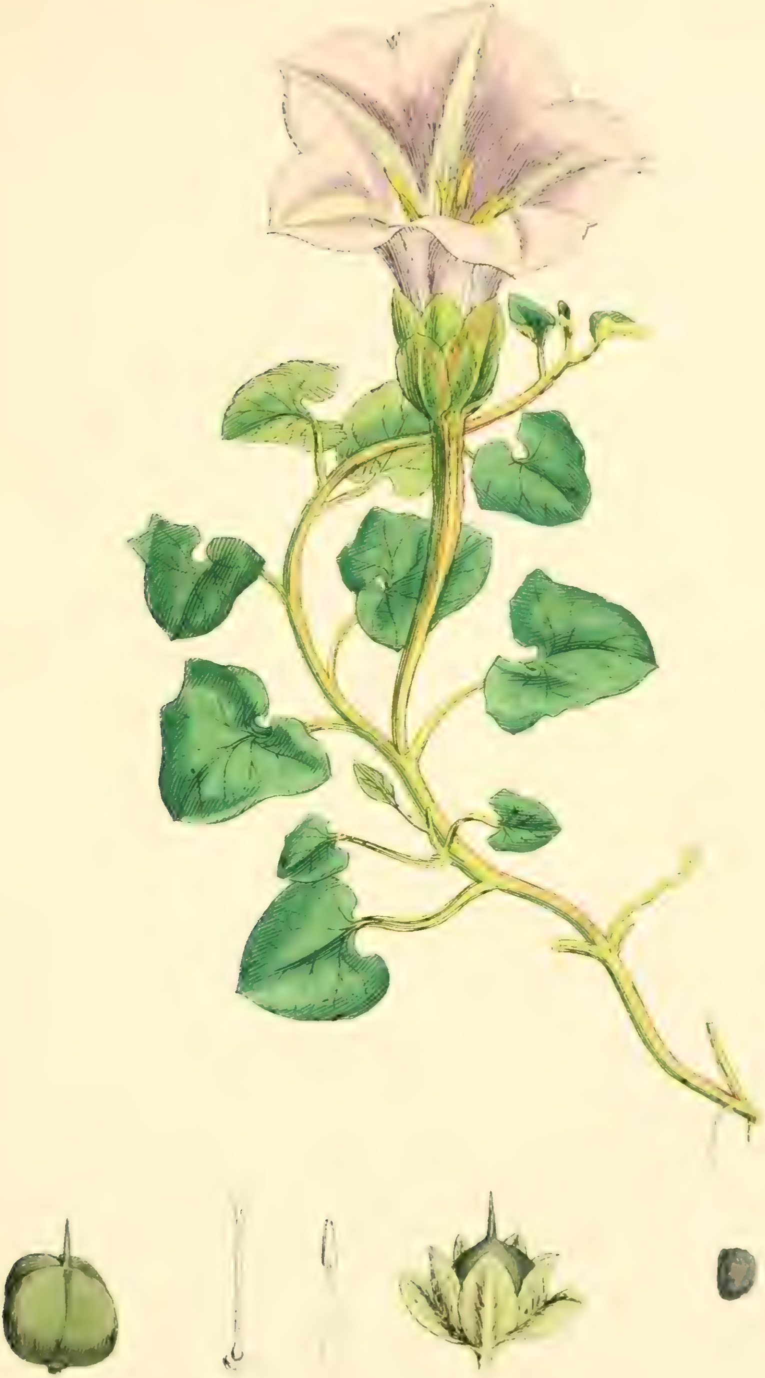
Convolvulus arvensis. Small Bindweed.



E. B. 313.

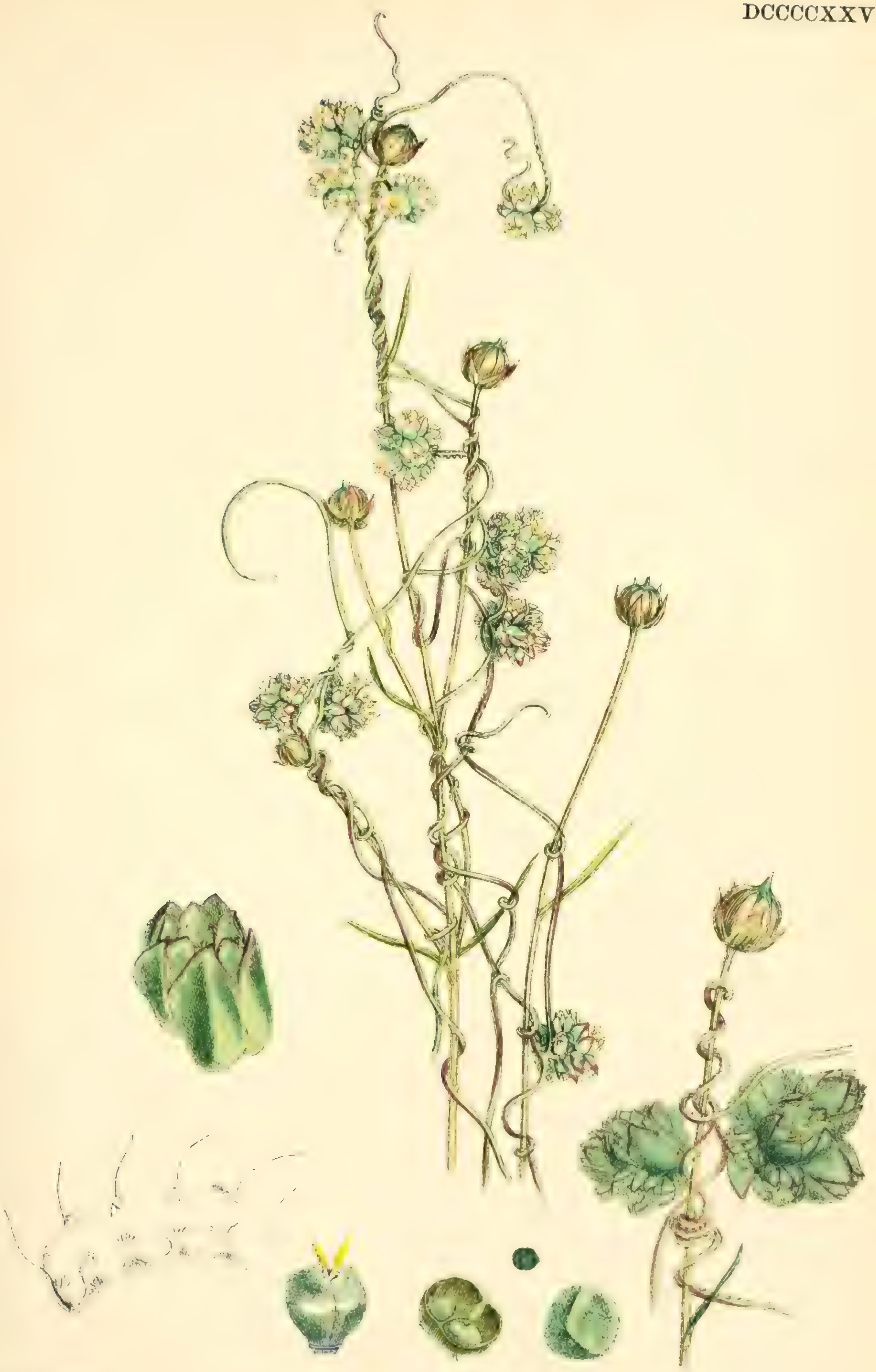
Convolvulus Sepium. Great Bindweed.

DCCCCXXV.



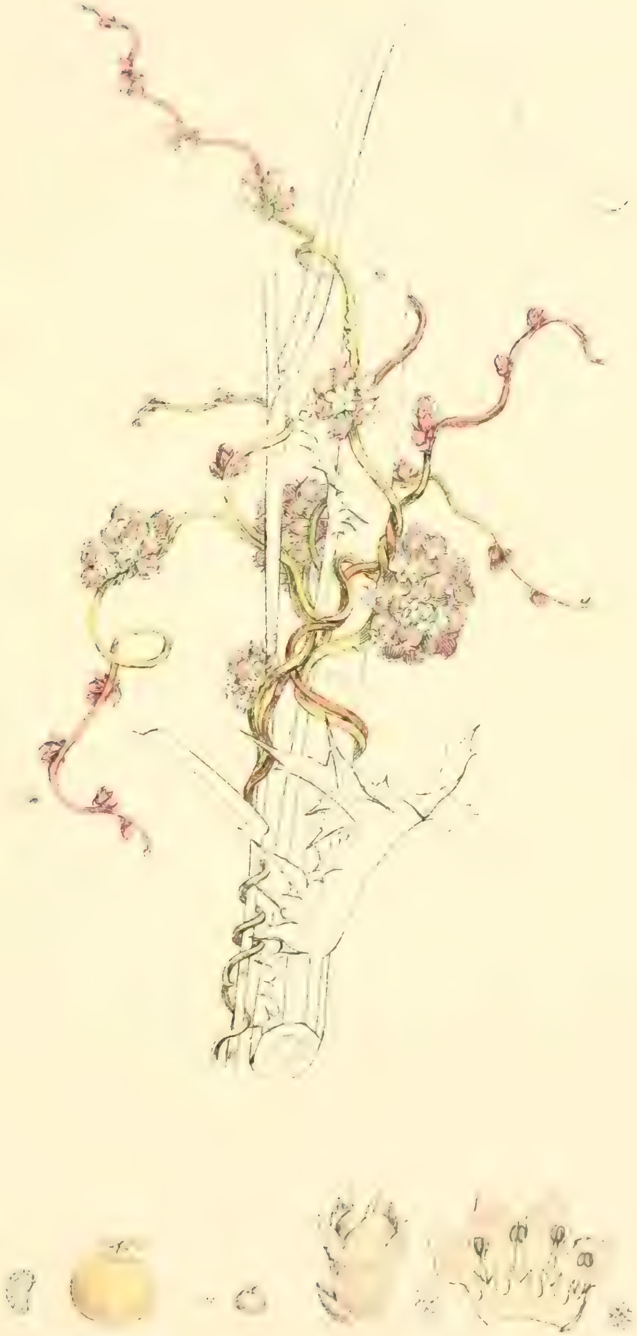
E.B. 314.

Convolvulus Soldanella. Sea Bindweed.



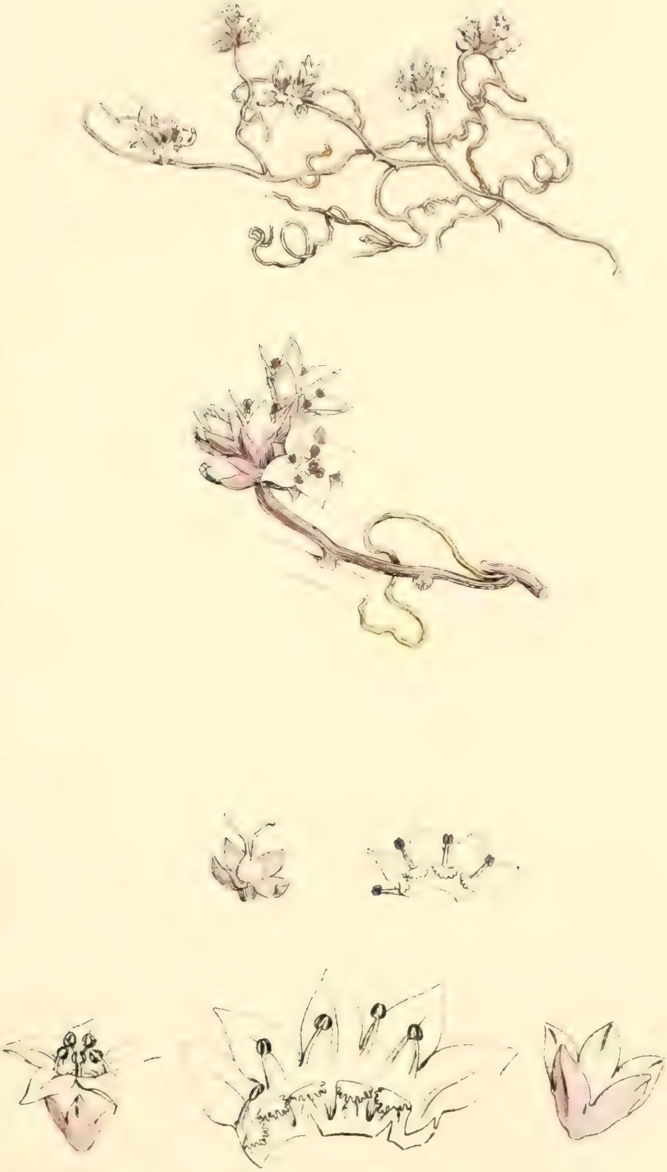
E.B.S. 2850.

Cuscuta Epilinum. Flax Dodder.



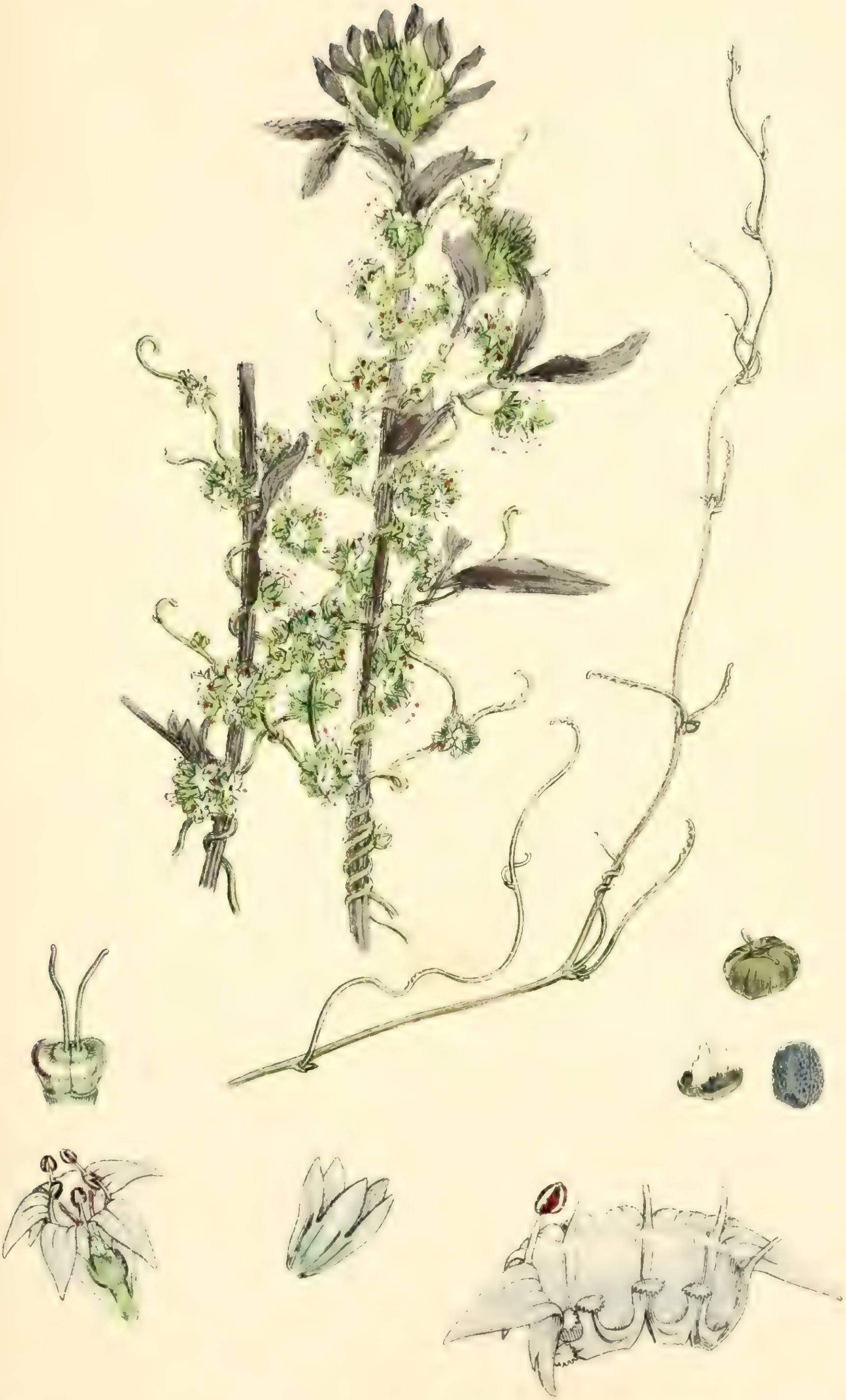
E.B. 378.

Cuscuta Europæa. Greater Dodder.



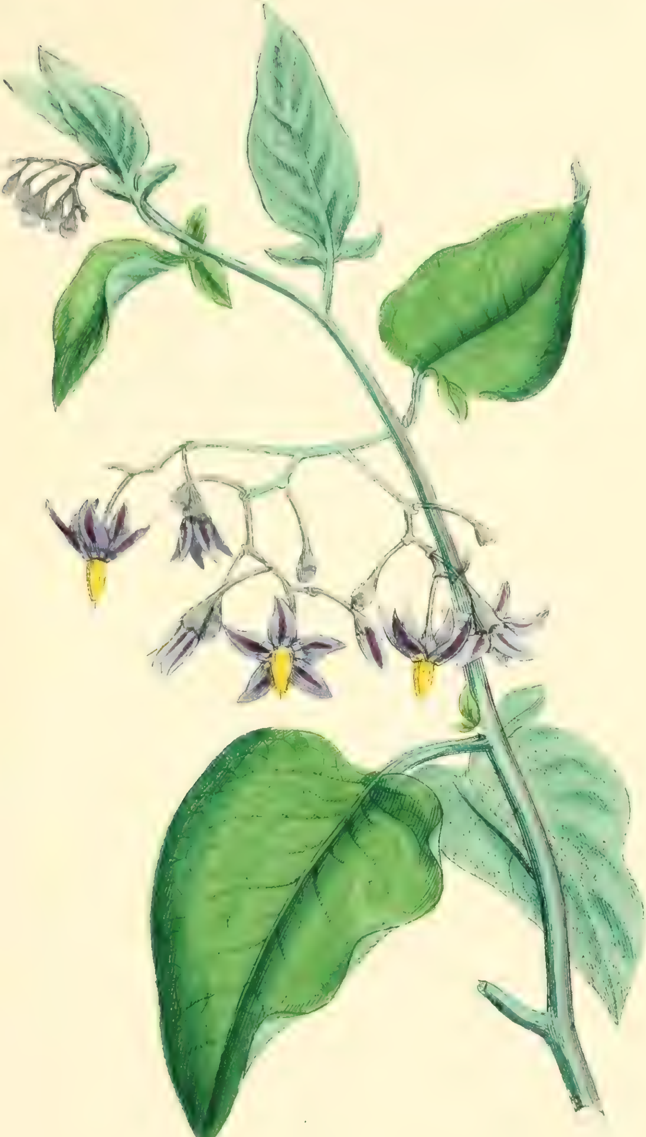
E.B. 55

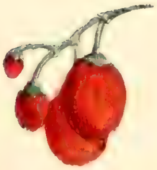
Cuscuta Epithymum. Lesser Dodder

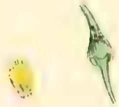


E. B. S. 2898.

Cuscuta Trifolii. Clover Dodder.

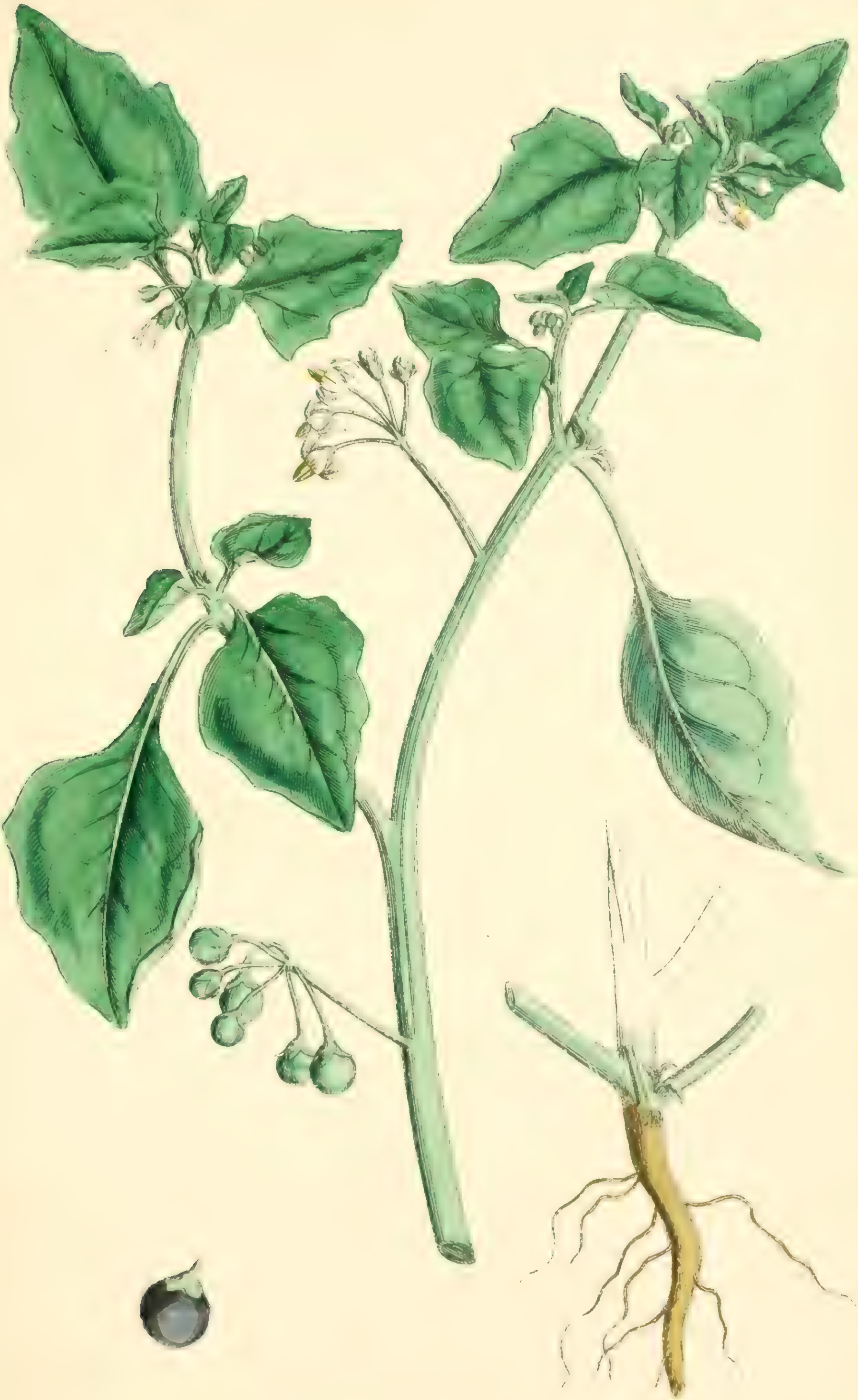






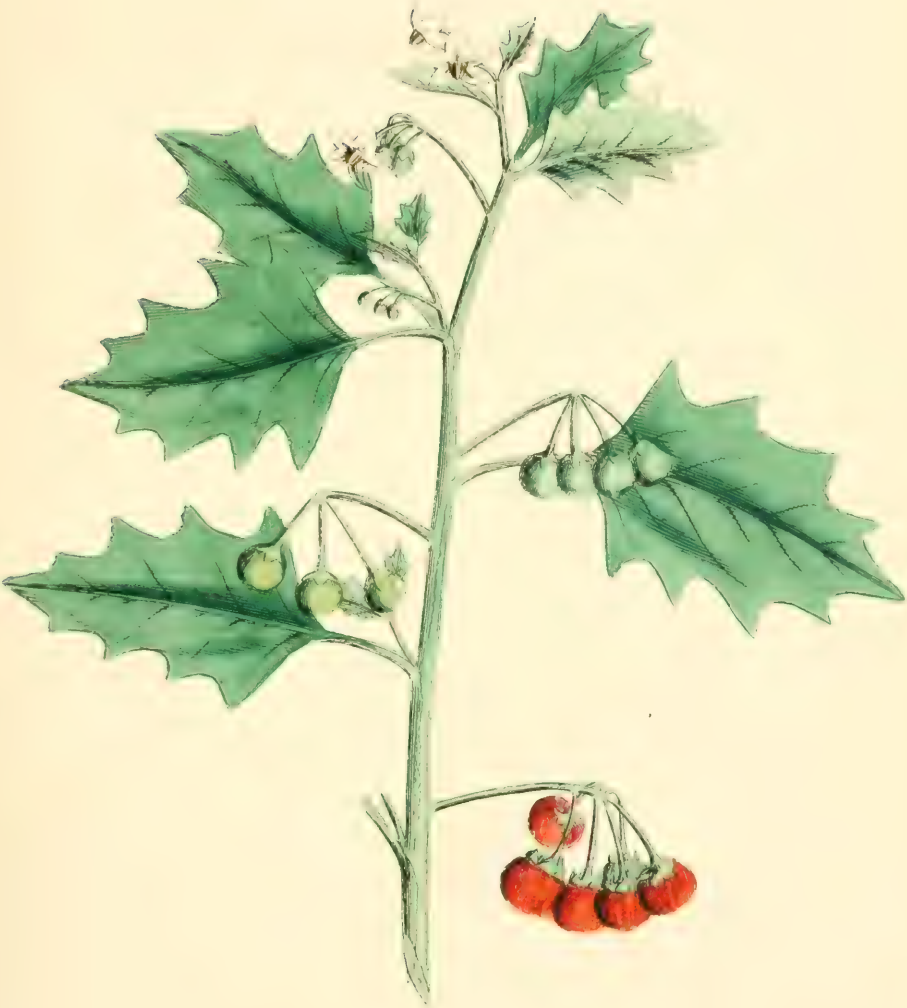
E.B. 565.

Solanum Dulcamara. Woody Nightshade.

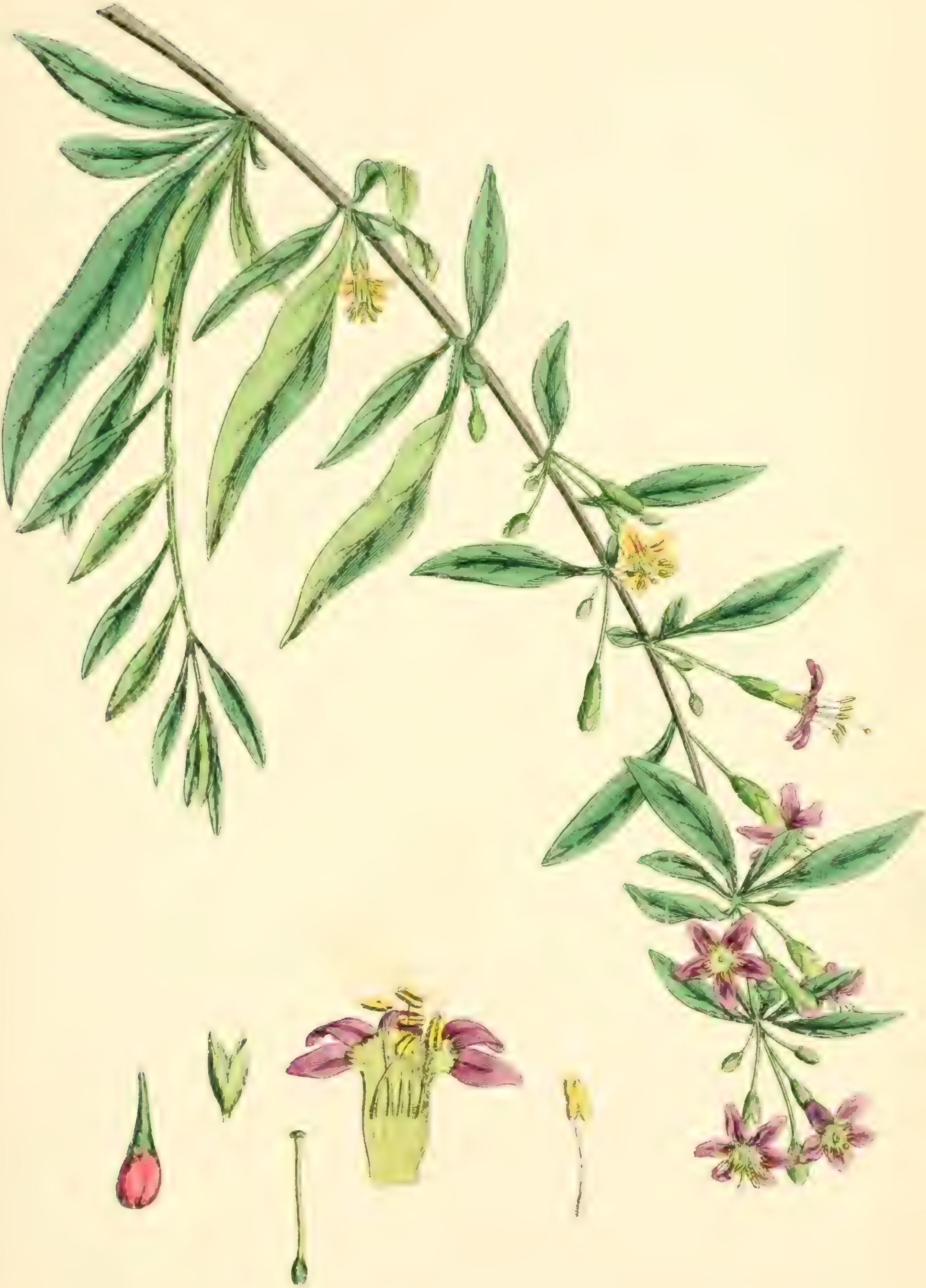


Solanum nigrum. var. *a*. Black Nightshade.

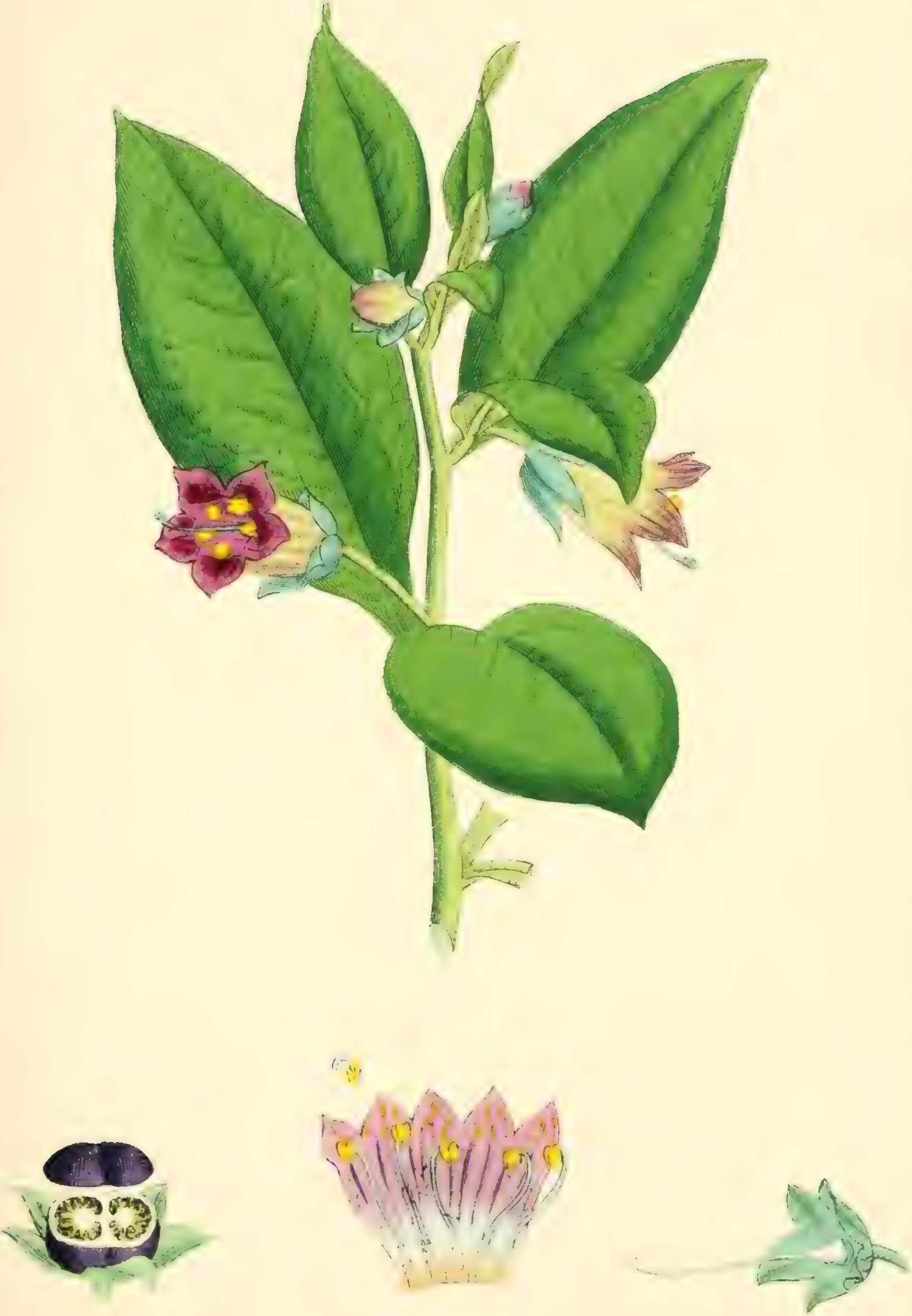
DCCCCXXXII.



Solanum nigrum. var β. Red Nightshade.

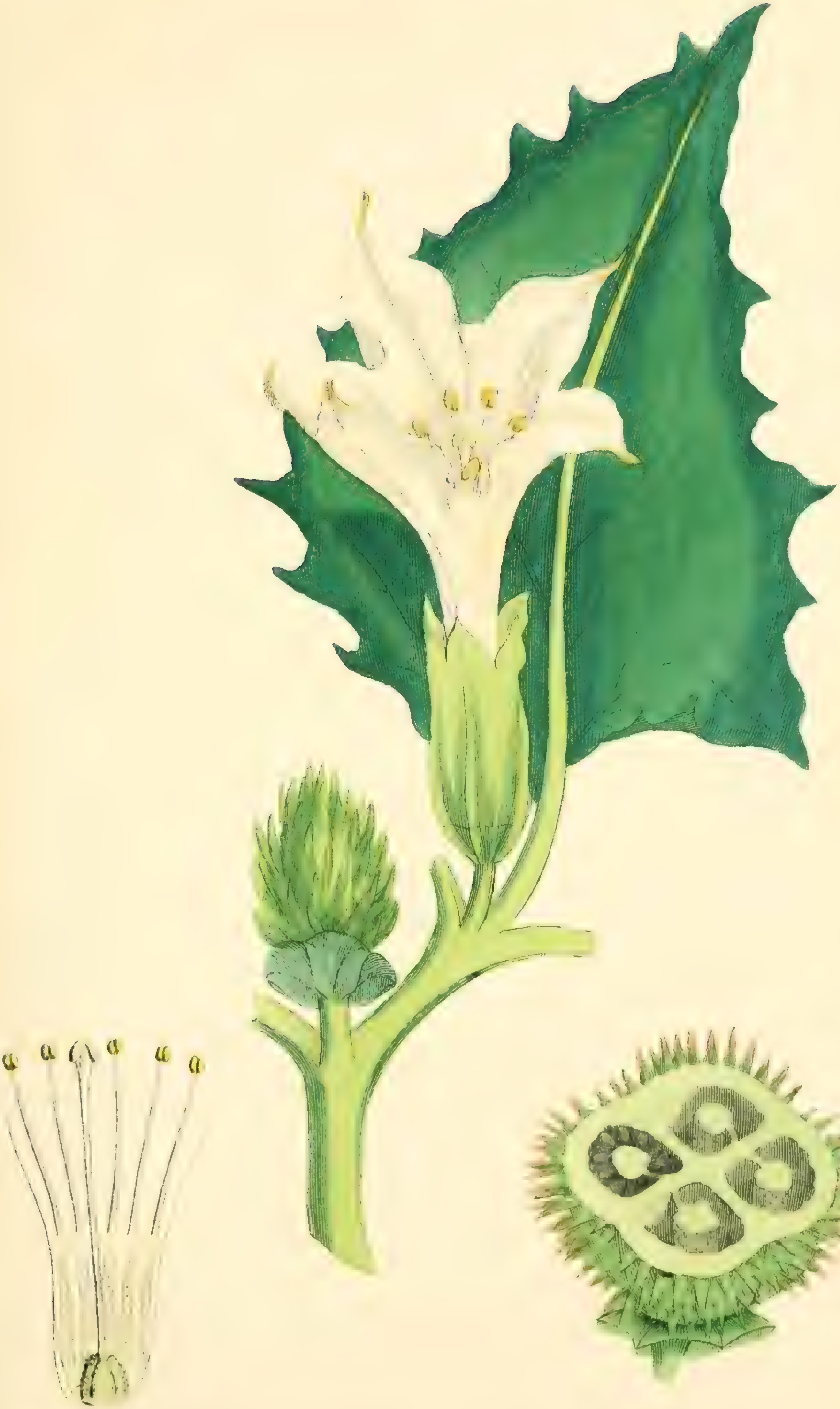


Lycium barbarum. Tea plant.



E. B. 592.

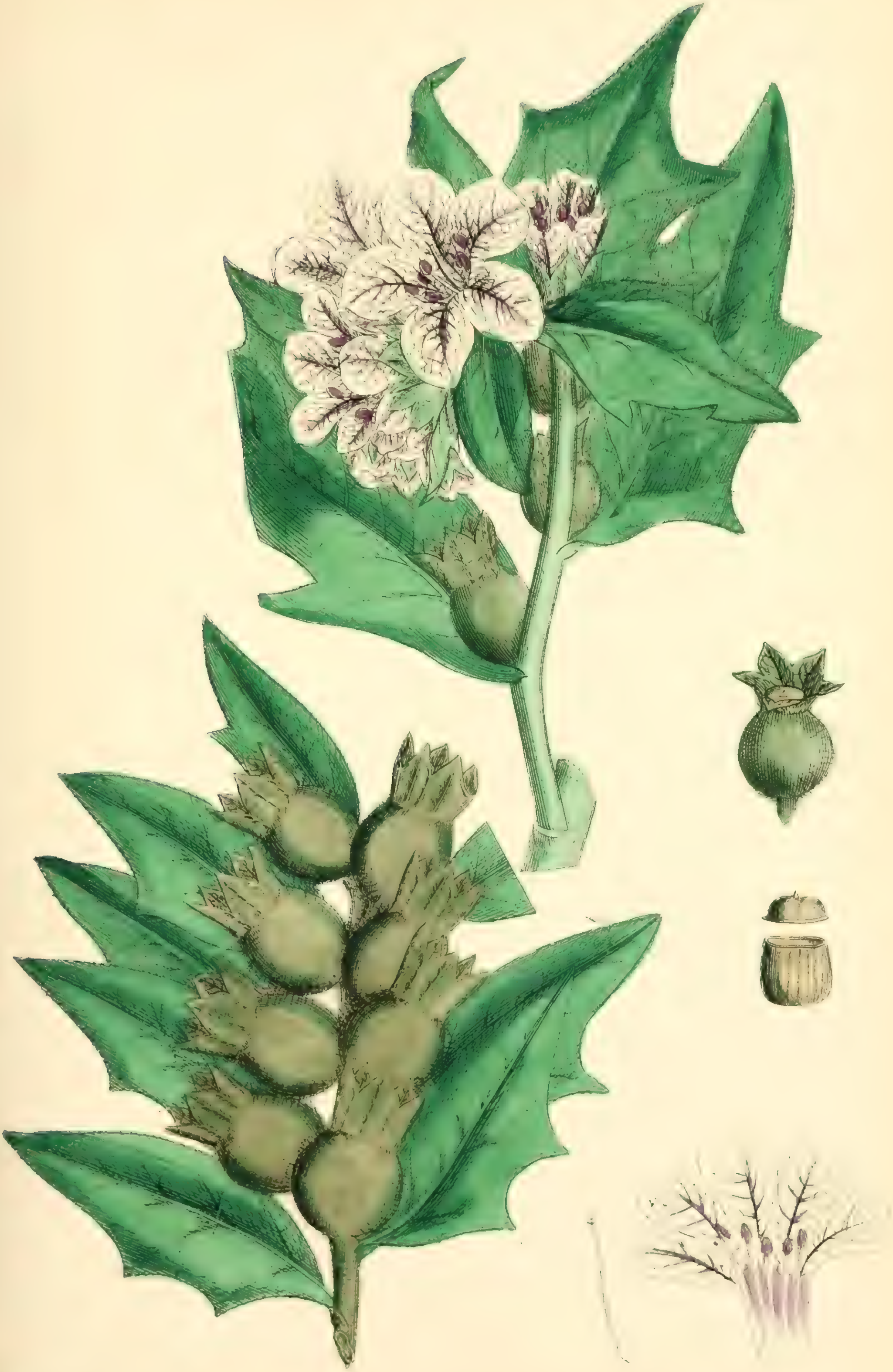
Atropa Belladonna. Deadly Nightshade.



E. B. 1288.

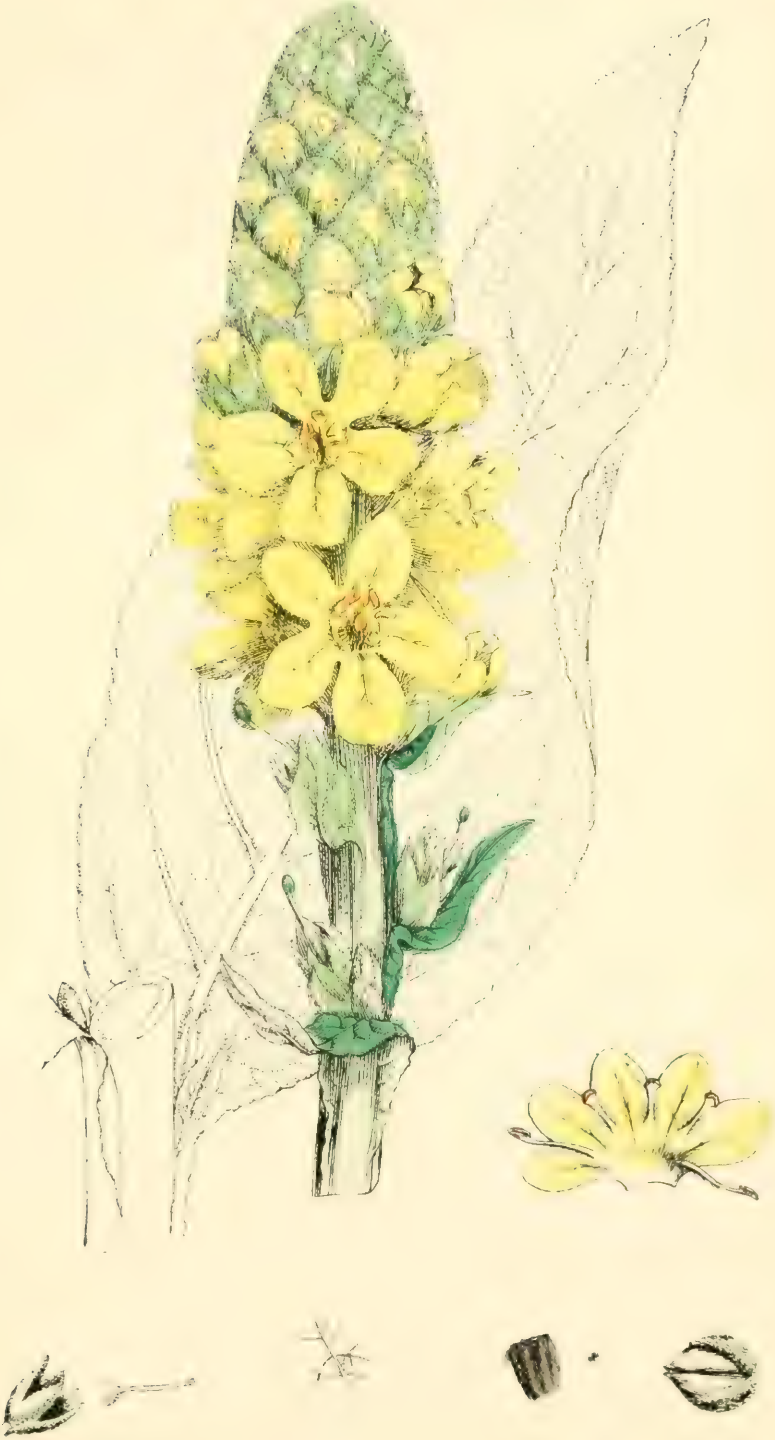
Datura Stramonium. Common Thorn-apple.

DCCCCXXXVI.



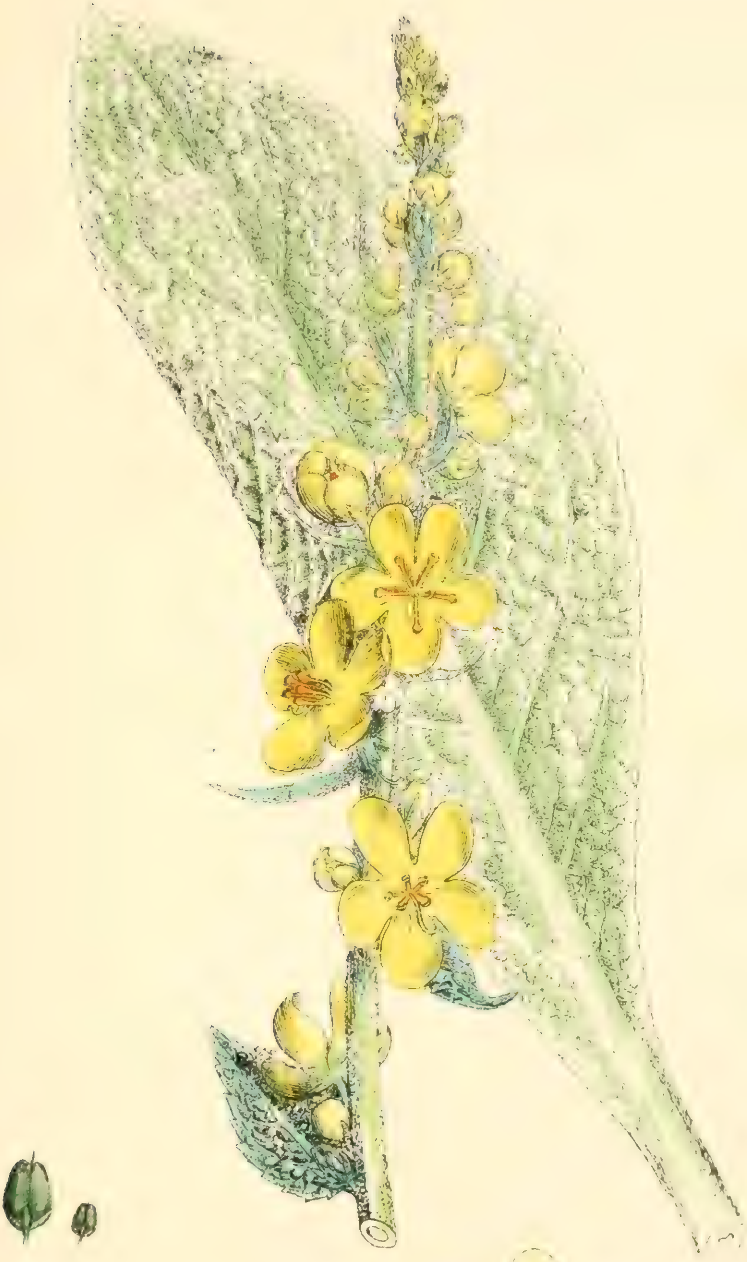
E. B. 591.

Hyoscyamus niger. Common Henbane.



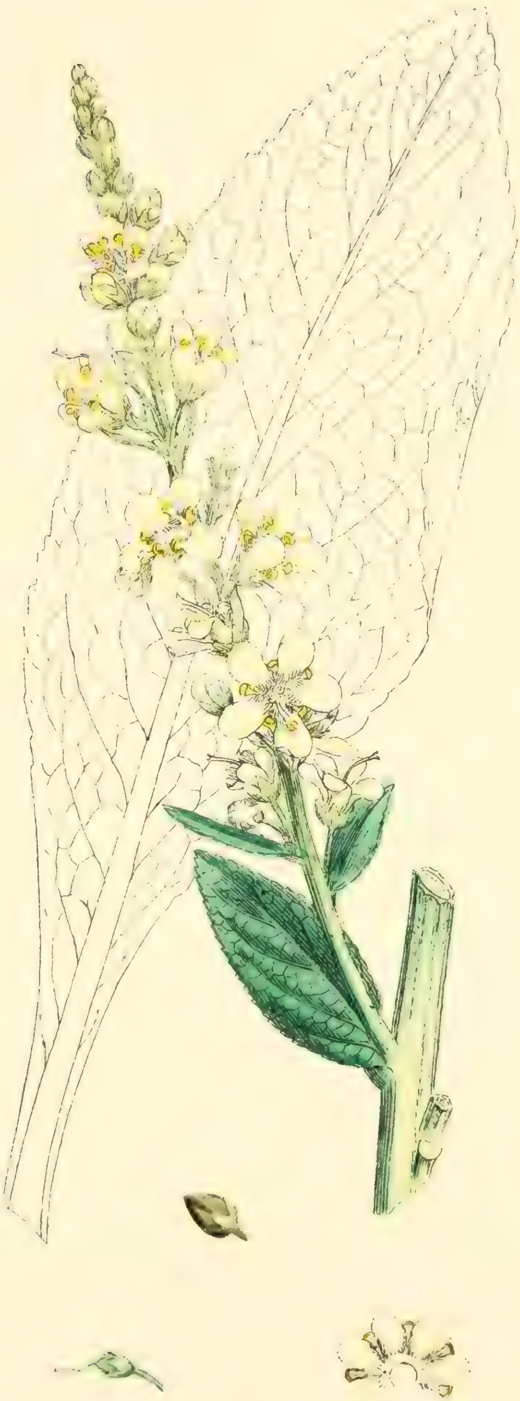
E.B. 549.

Verbascum Thapsus. Great Mullein.



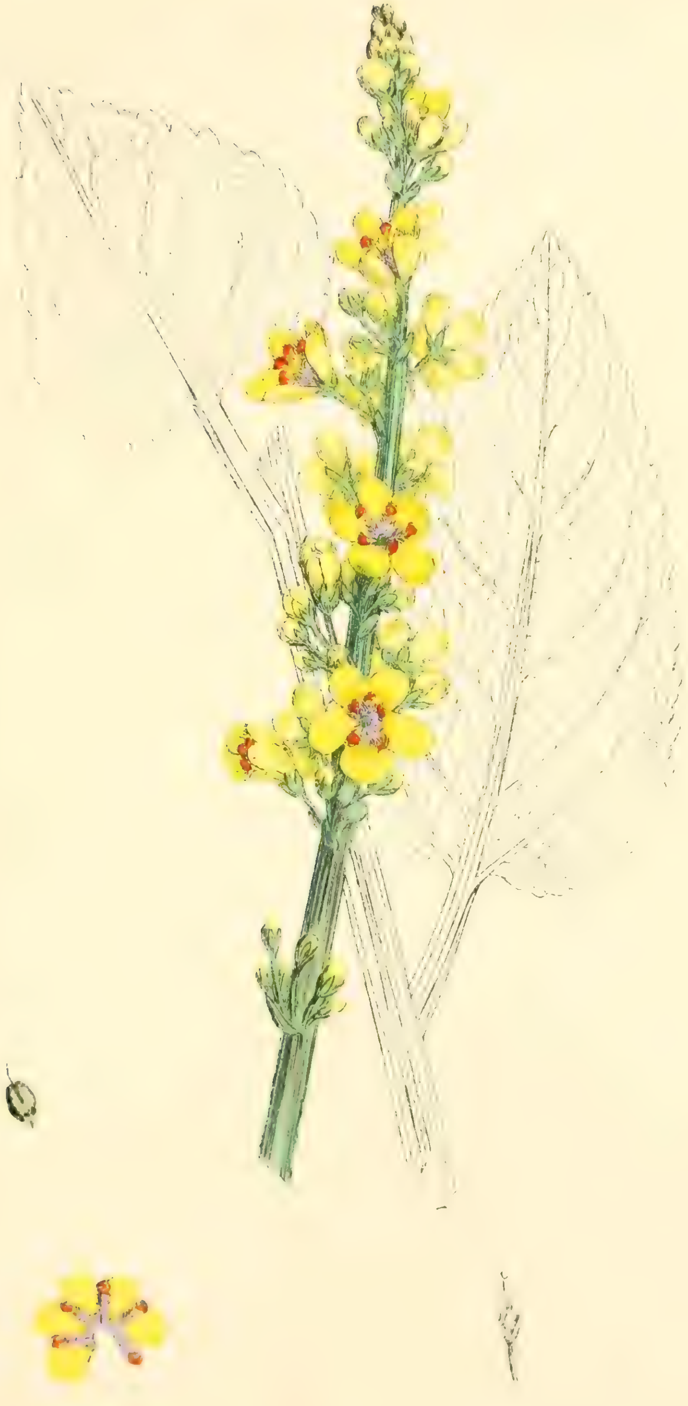
E. B. 487.

Verbascum pulverulentum. Hoary Mullein.



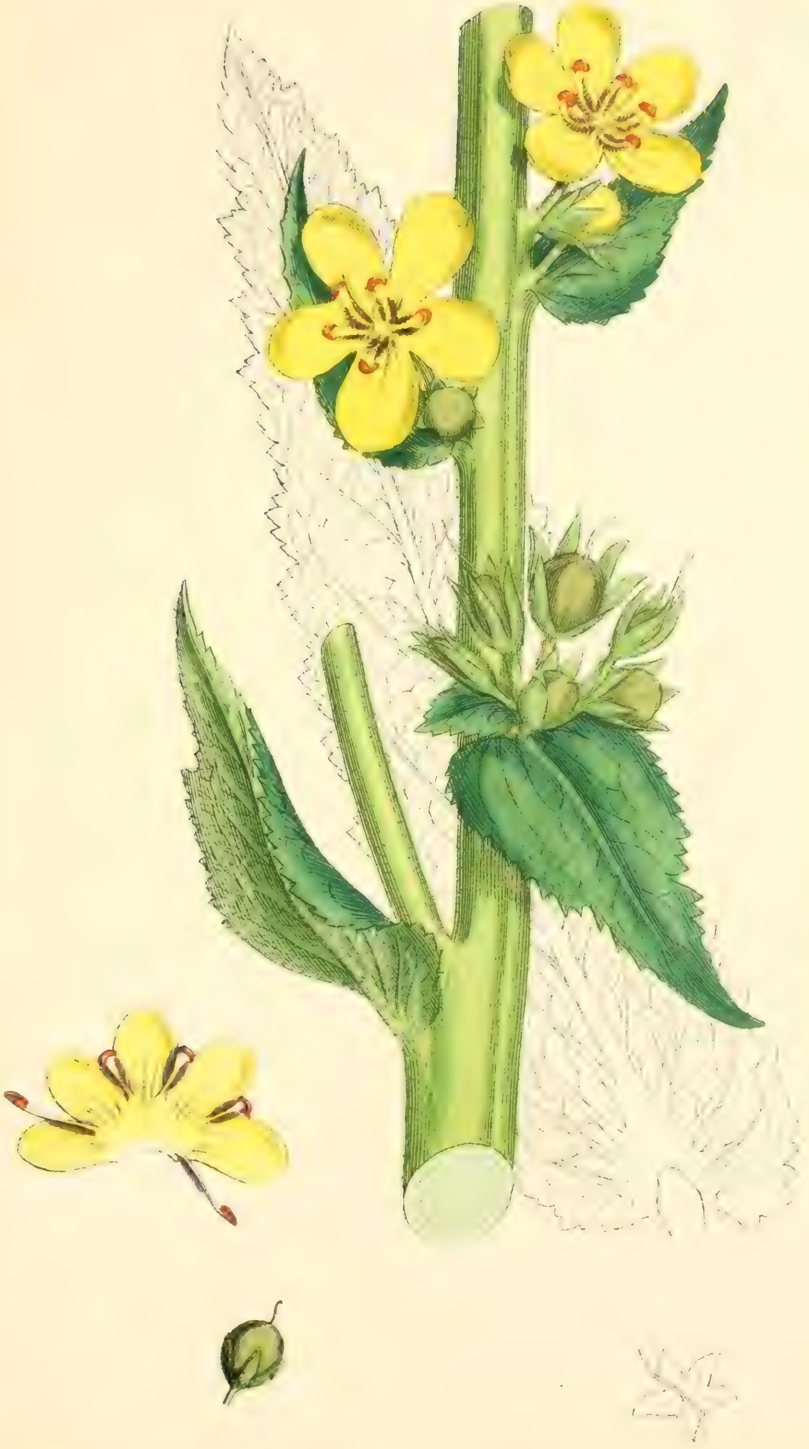
***E. B.* 58.**

Verbascum Lychnitis. White Mullein.



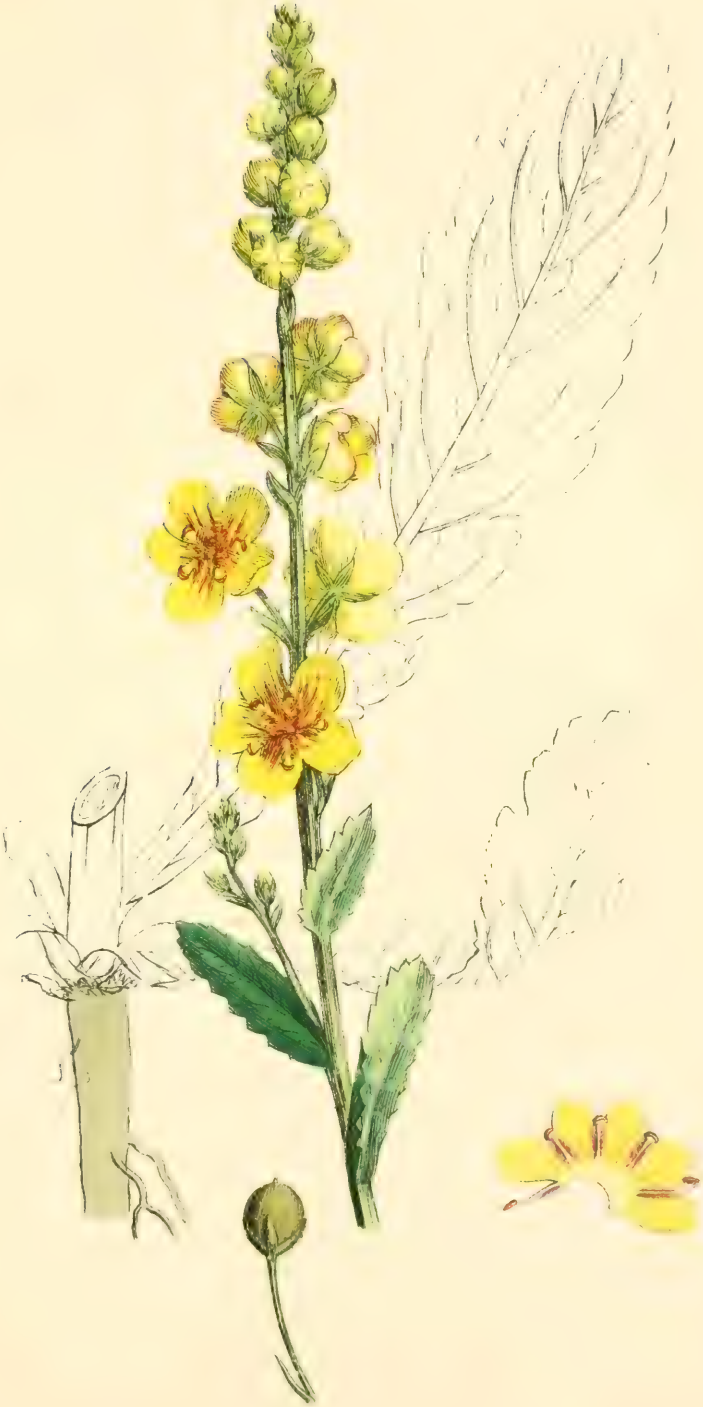
E.B 59.

Verbascum nigrum. Dark Mullein.



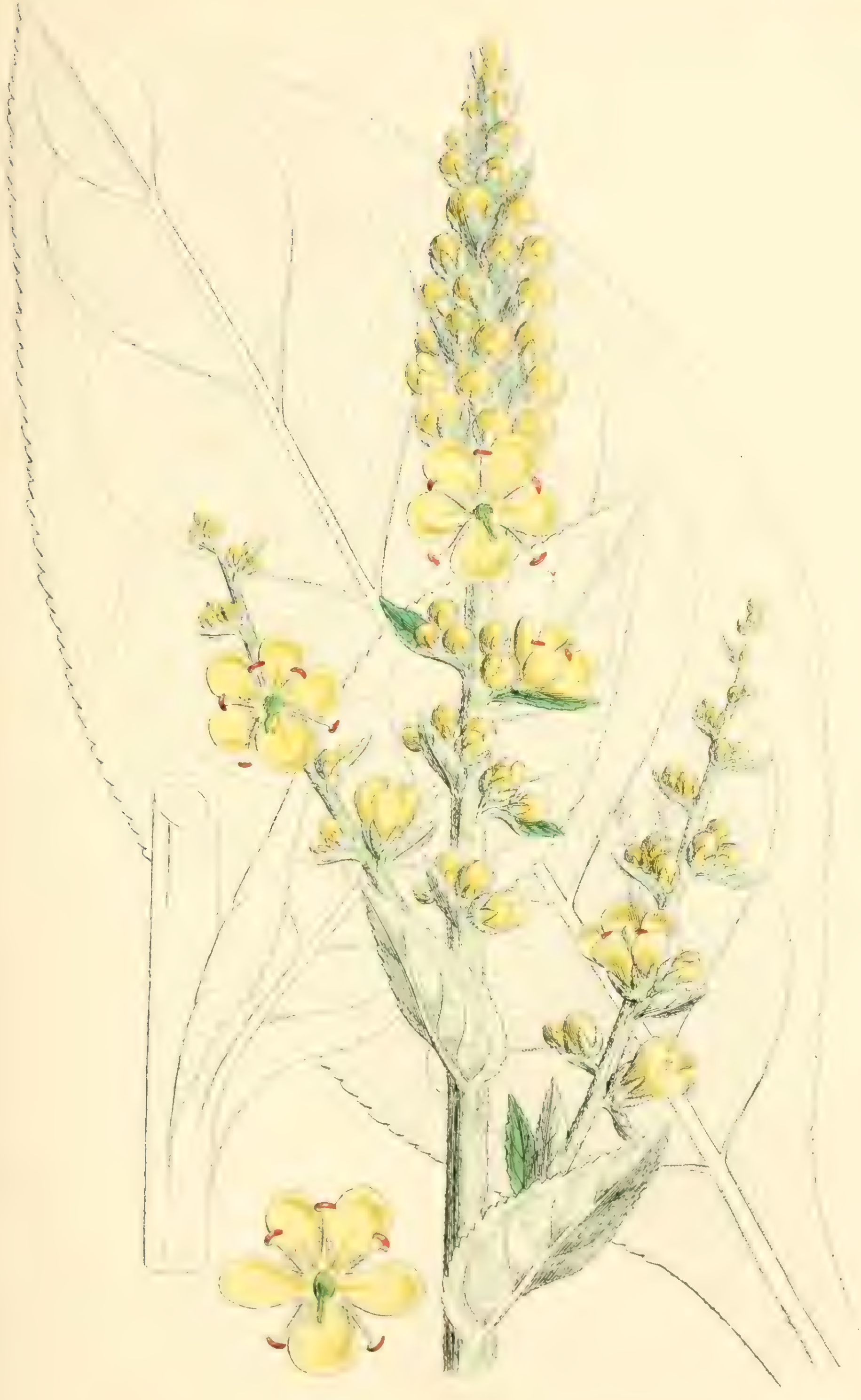
E. B. 550.

Verbascum virgatum. Large-flowered Mullein.

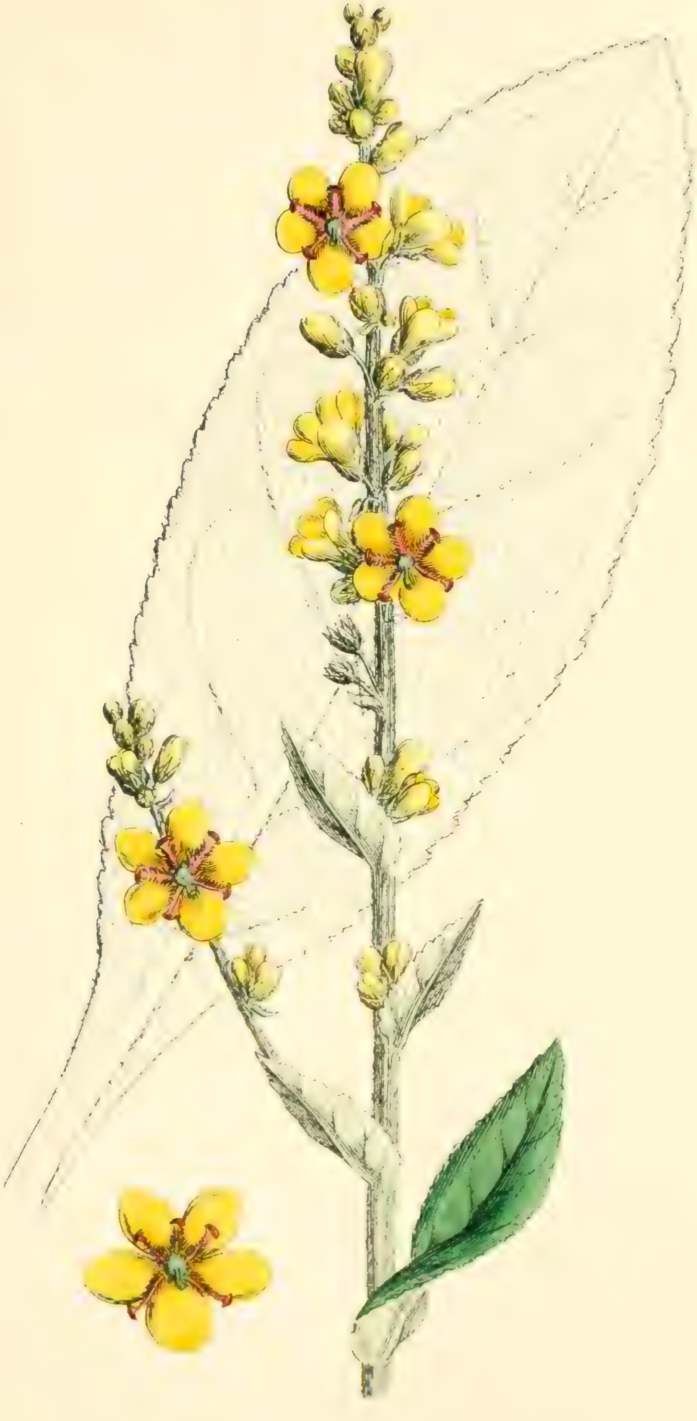


E. B. 393.

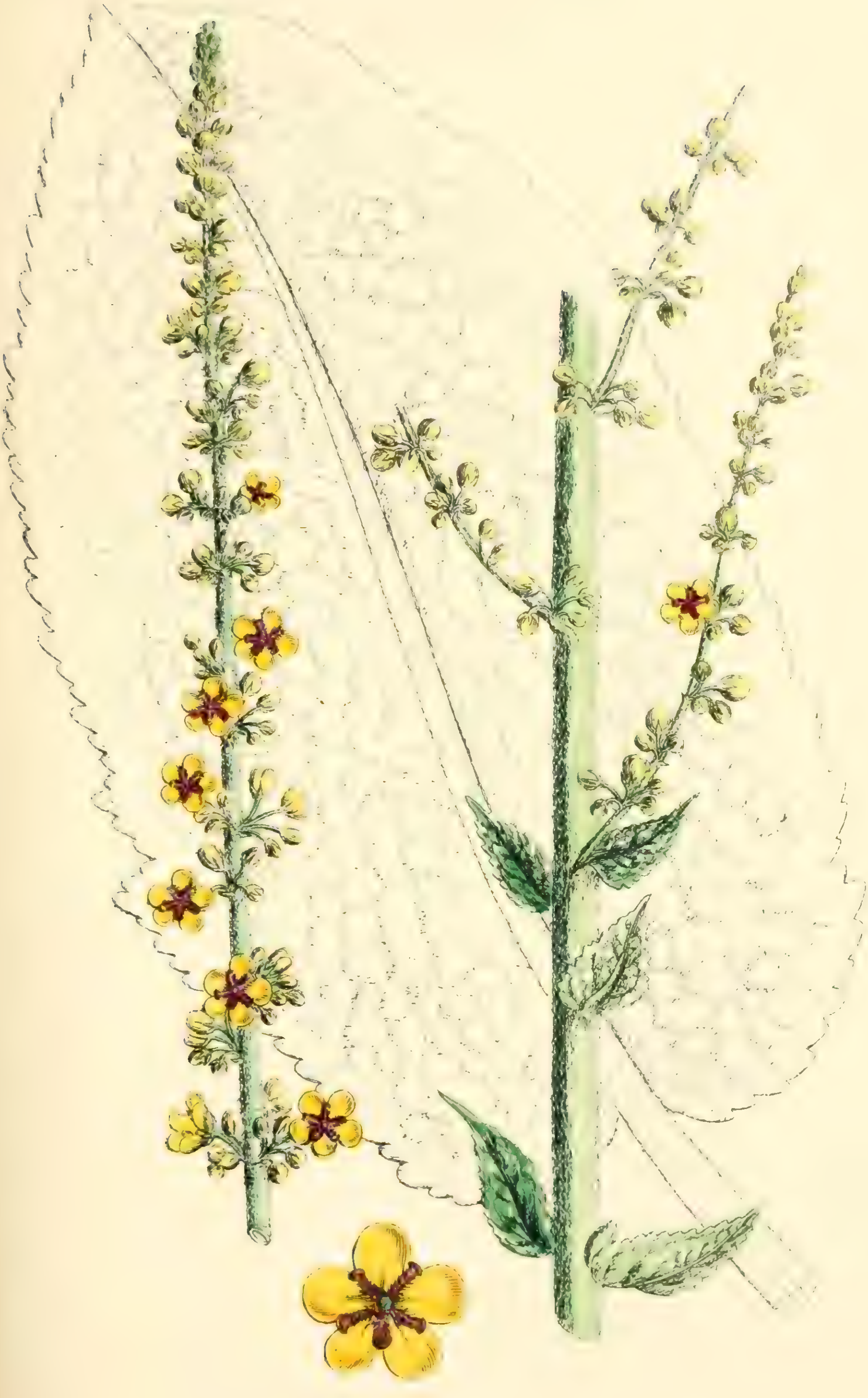
Verbascum Blattaria. Moth Mullein.



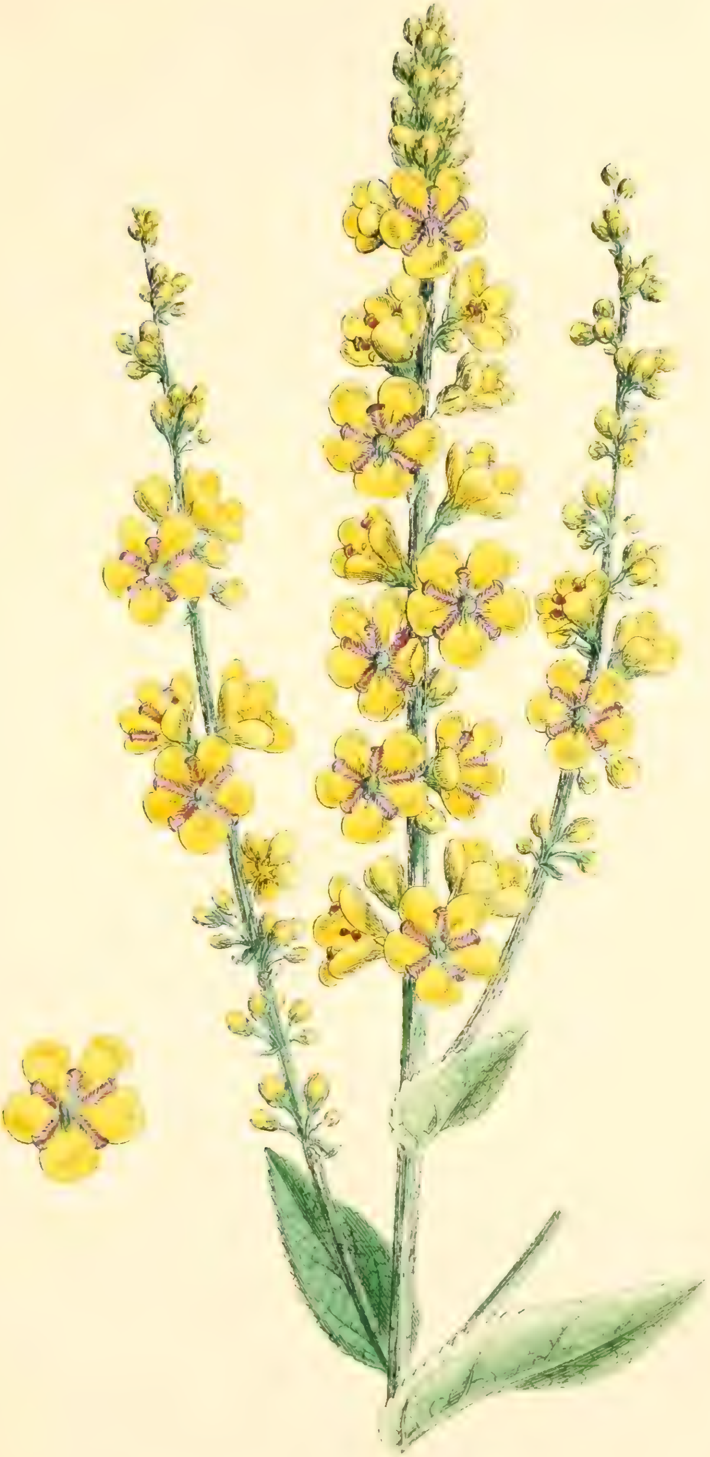
Verbascum Thapso-Lychnitis. Hybrid between Great and White Mulleins



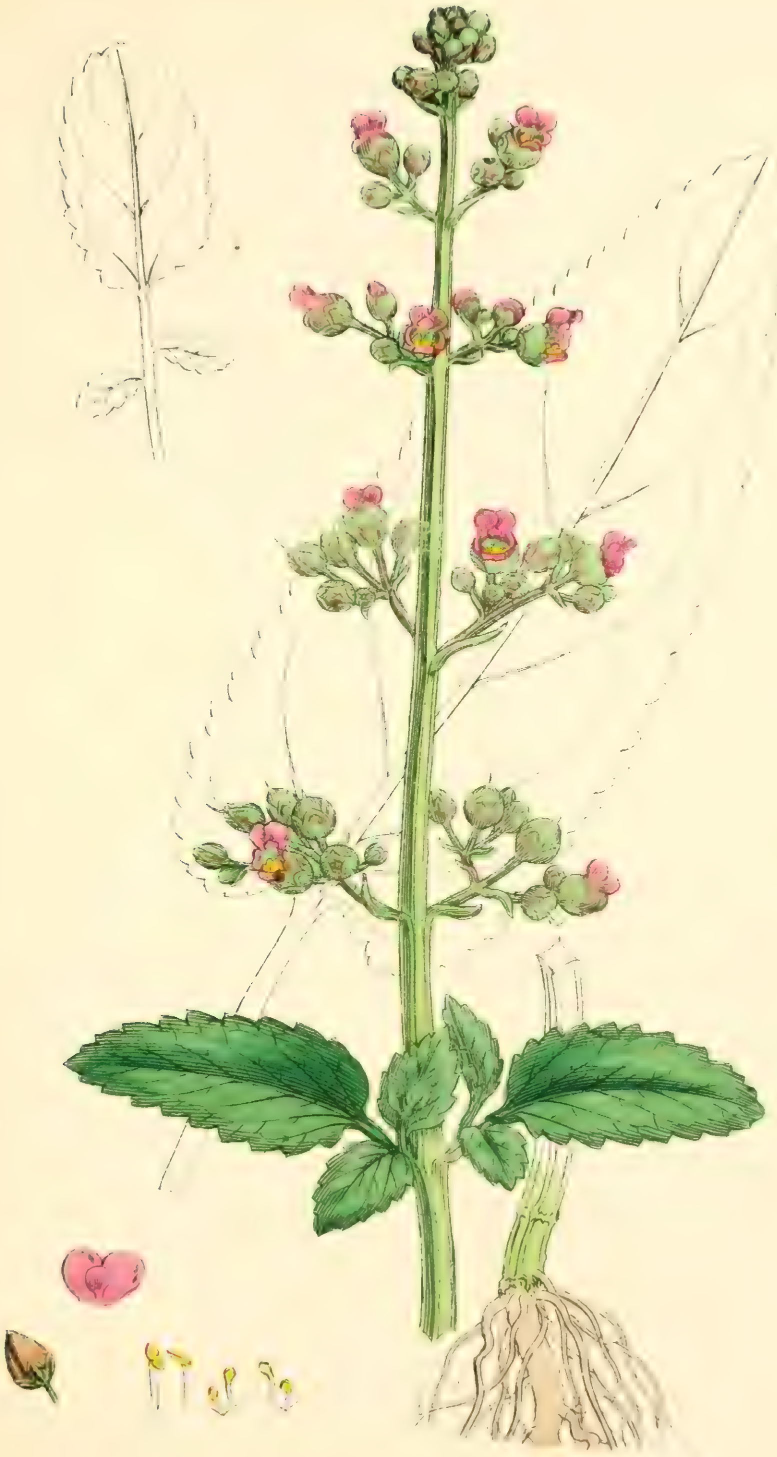
Verbascum Thapso-nigrum. Hybrid between Great and Dark Mulleins.



Verbascum nigro-pulverulentum. Hybrid between Dark and Hoary Mulleins.

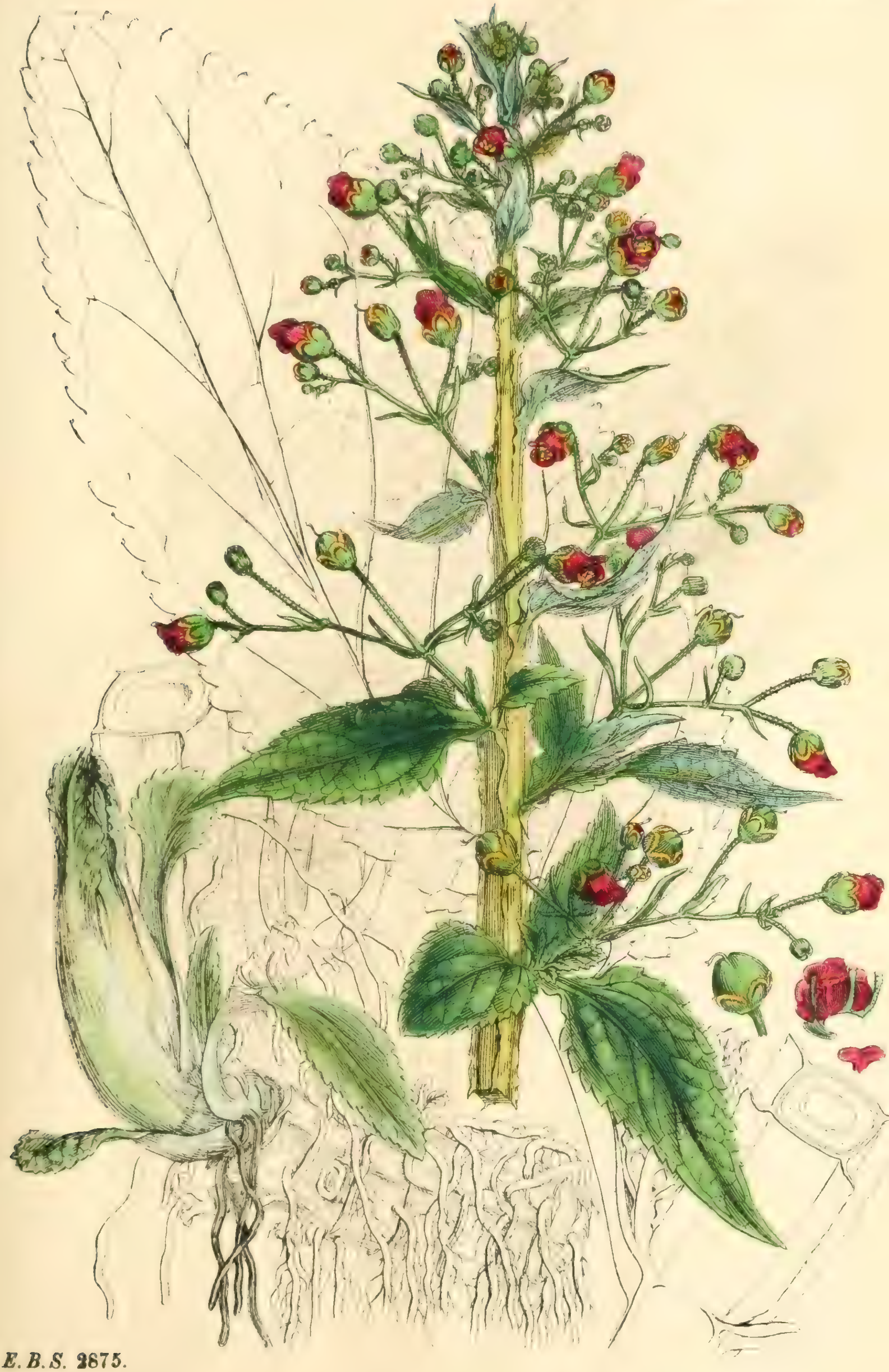


Verbascum nigro-Lychnitis Hybrid between Dark and White Mulleins.



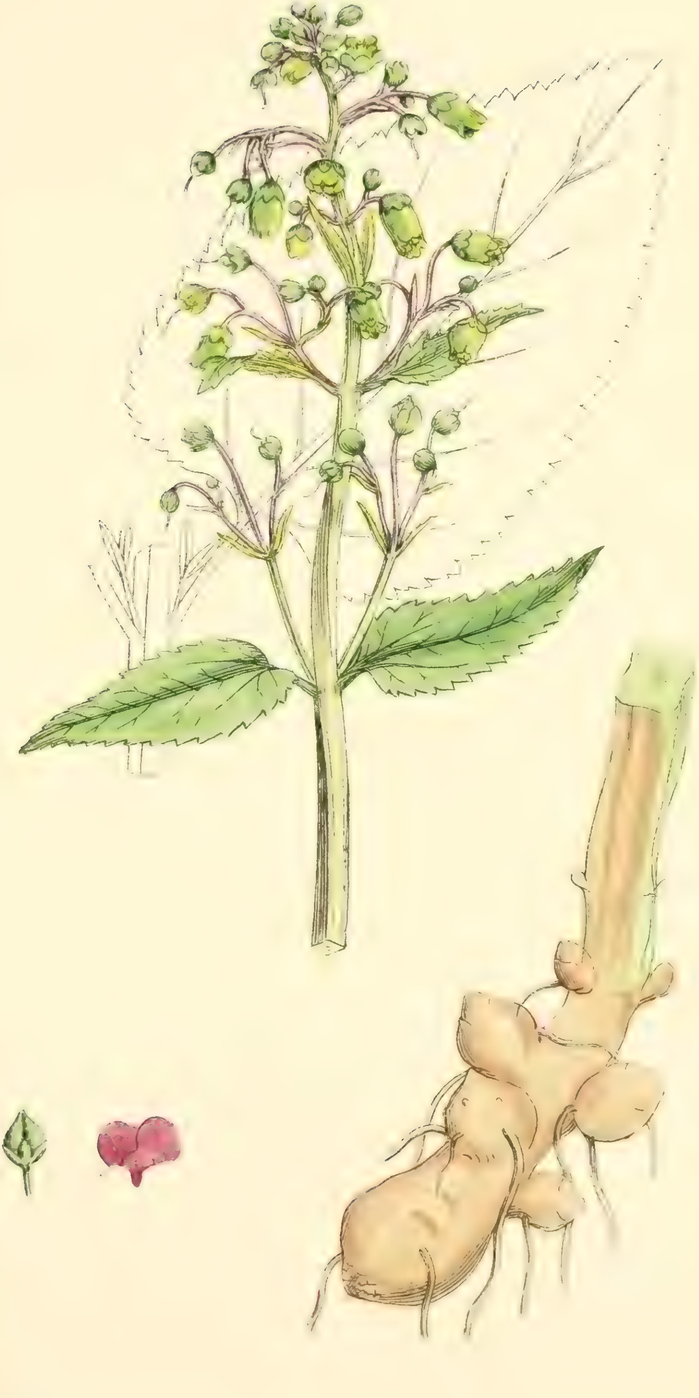
E.B. 854.

Scrophularia aquatica. Common Water Betony.



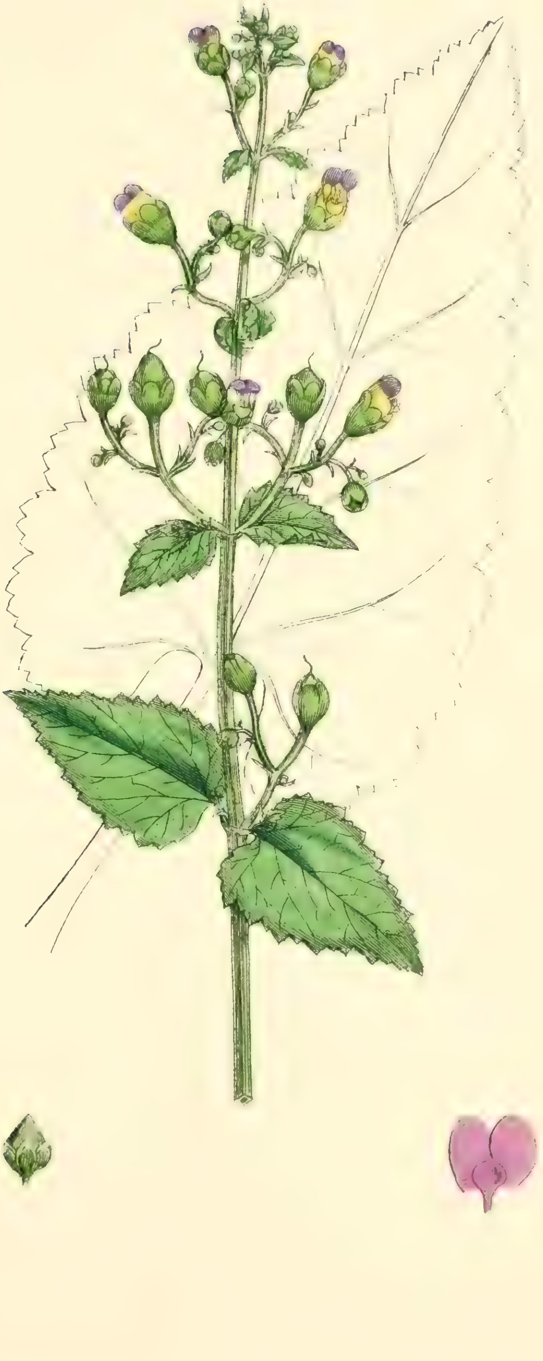
E. B. S. 2875.

Scrophularia Ehrharti. Ehrhart's Water-Betony.



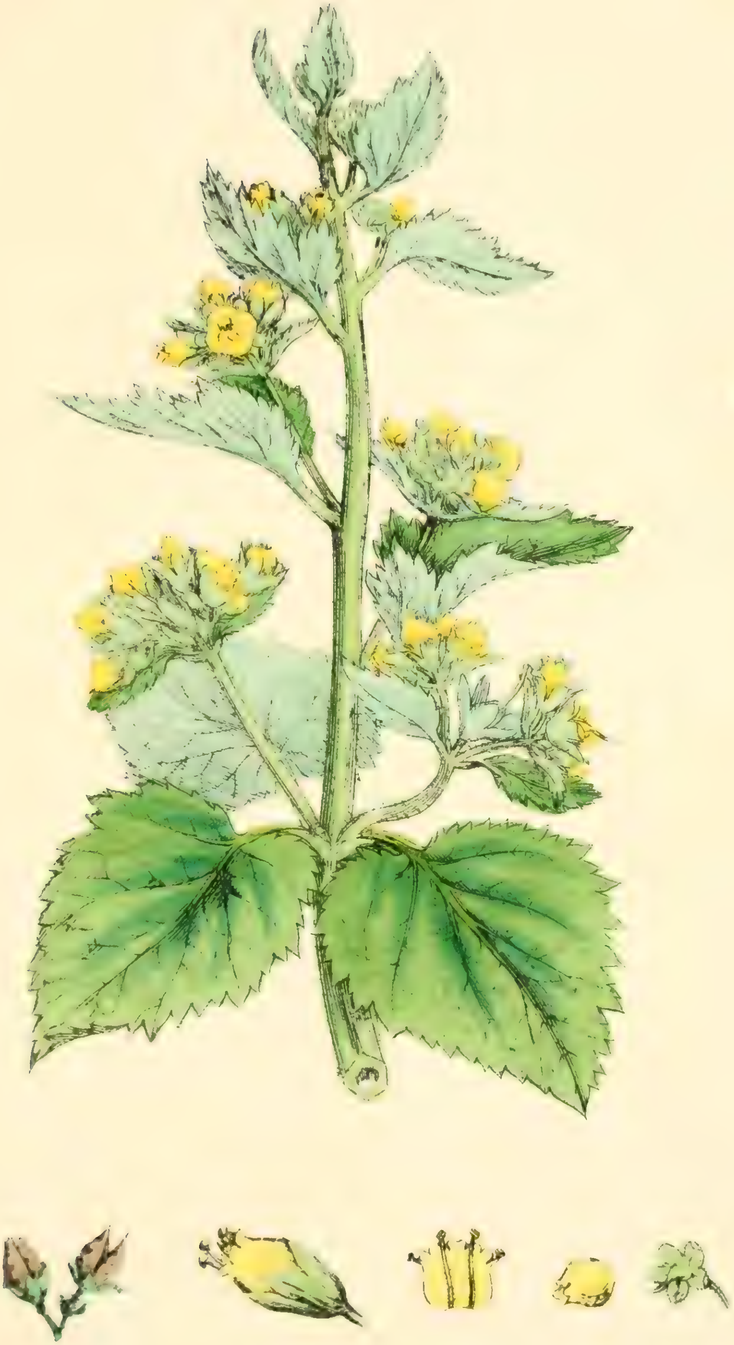
E. B. 1544.

Scrophularia nodosa. Knotty-rooted Figwort.



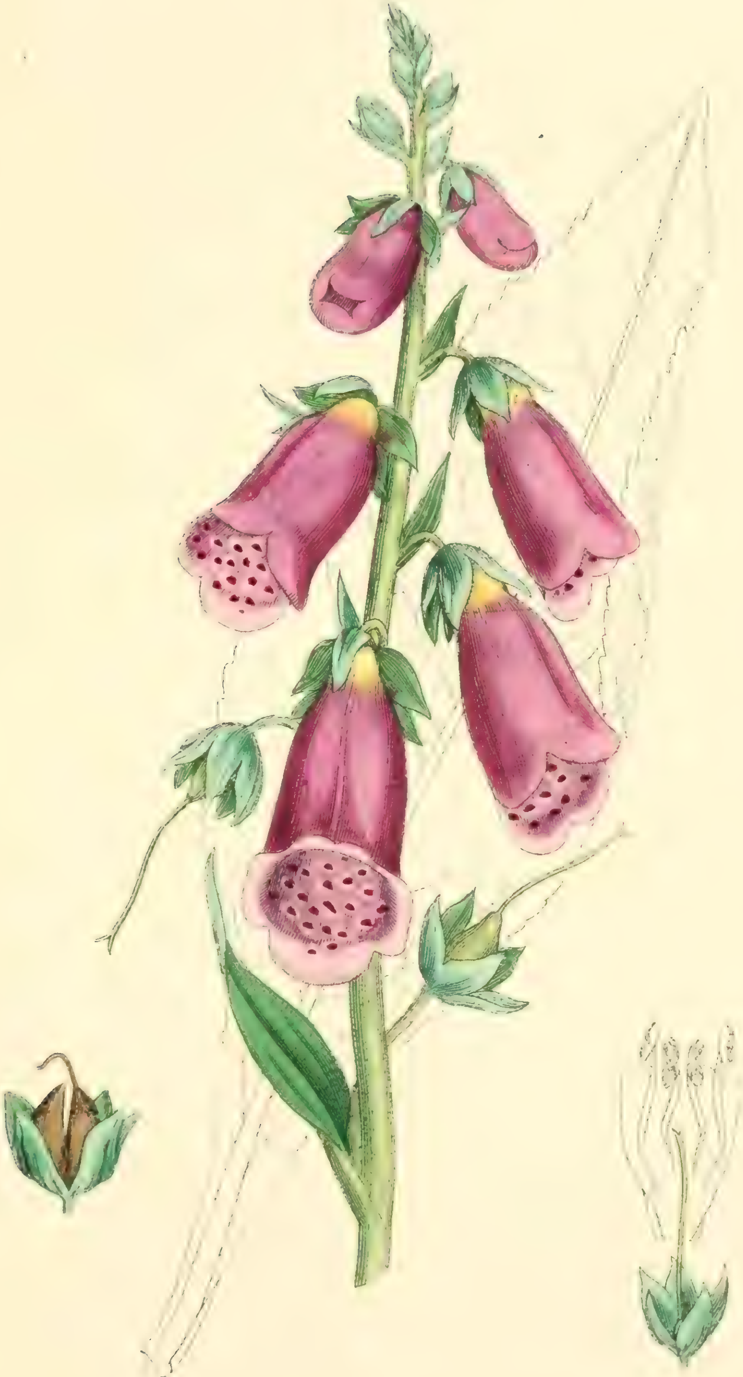
E.B. 2209.

Scrophularia Scorodonia. Balm-leaved Figwort.



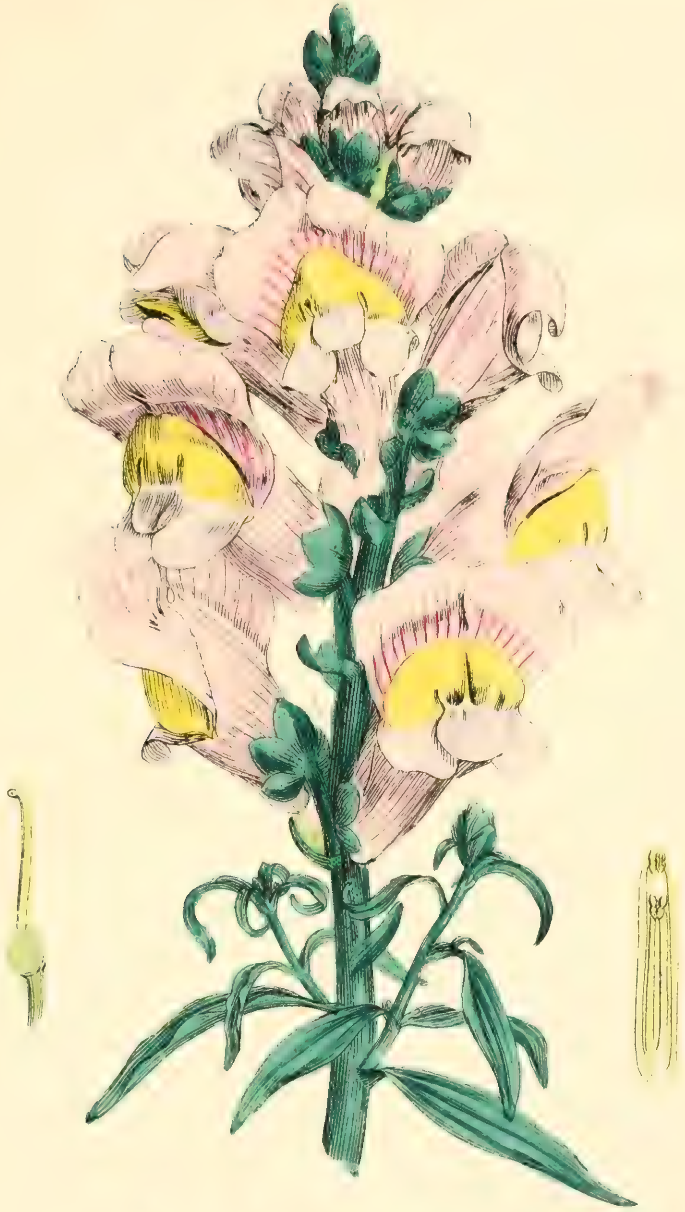
E. B. 567

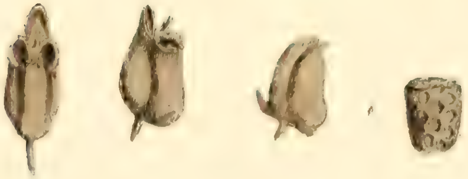
Scrophularia vernalis.   Yellow Figwort.



E. B. 1297.

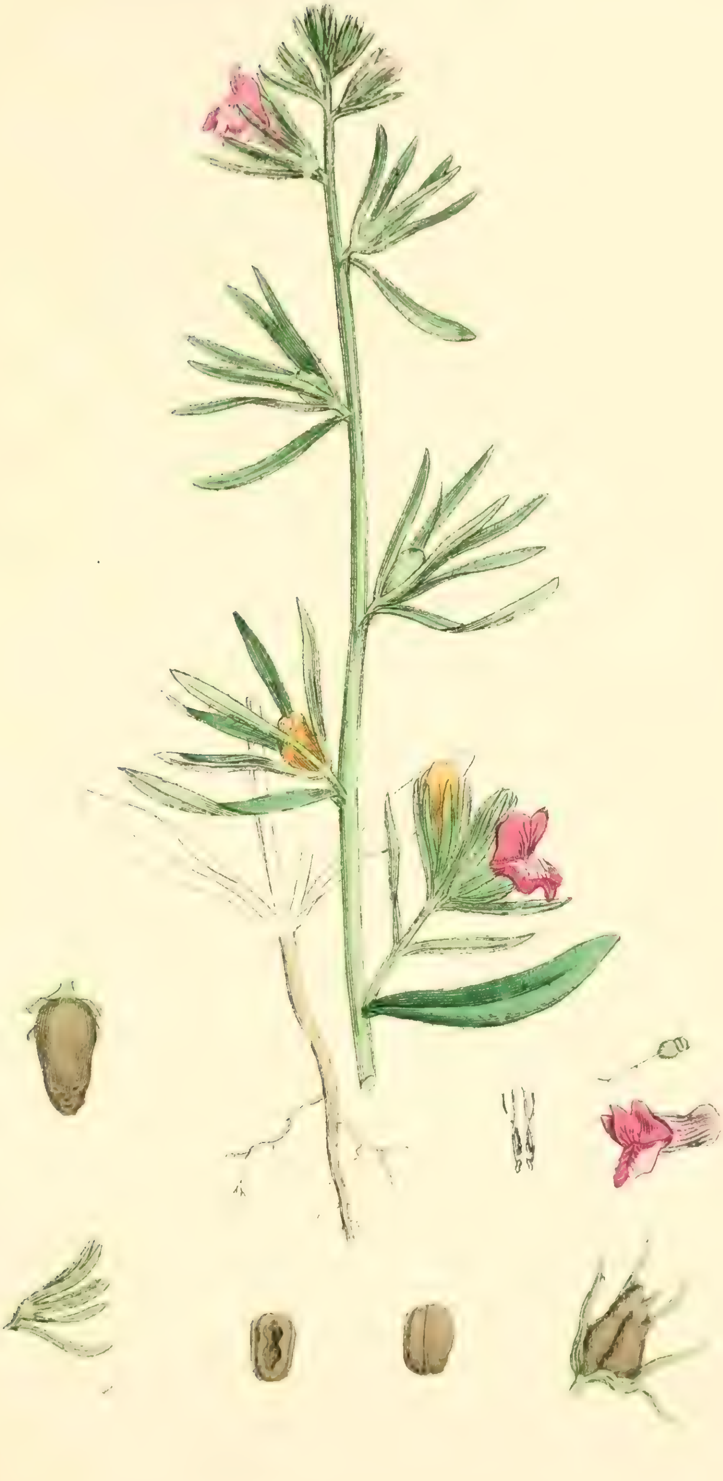
Digitalis purpurea. Purple Foxglove.





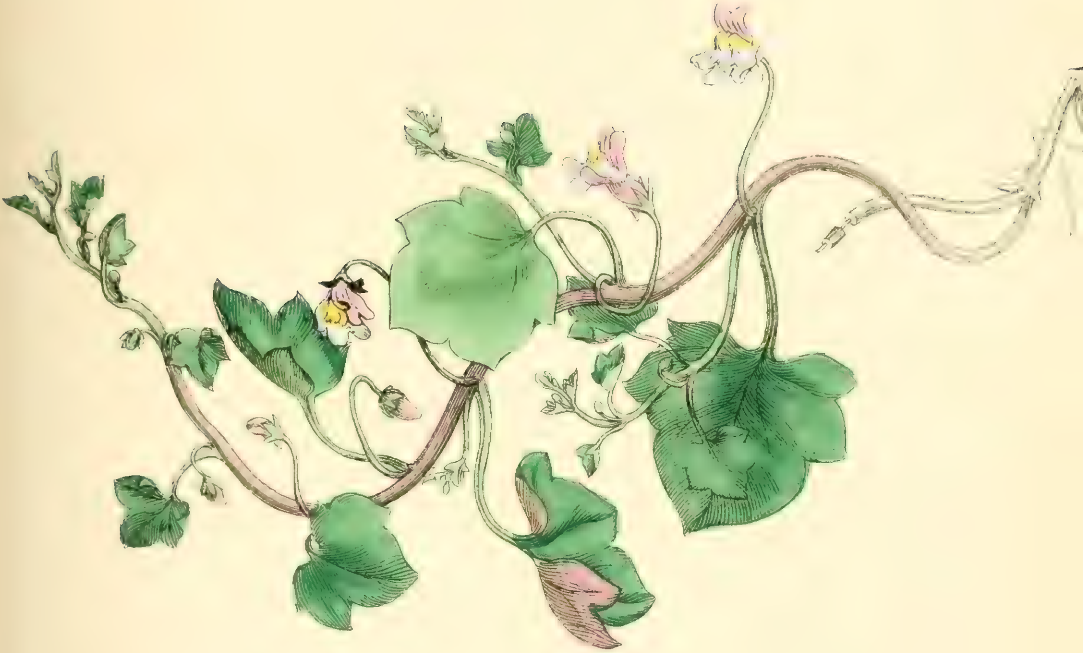
E.B 129.

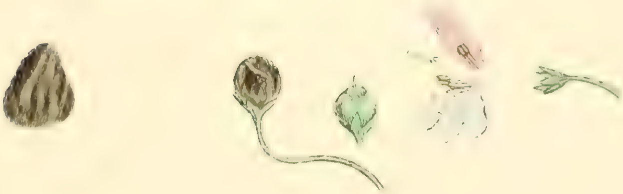
Antirrhinum majus. Common Snapdragon.



S. B. 1155.

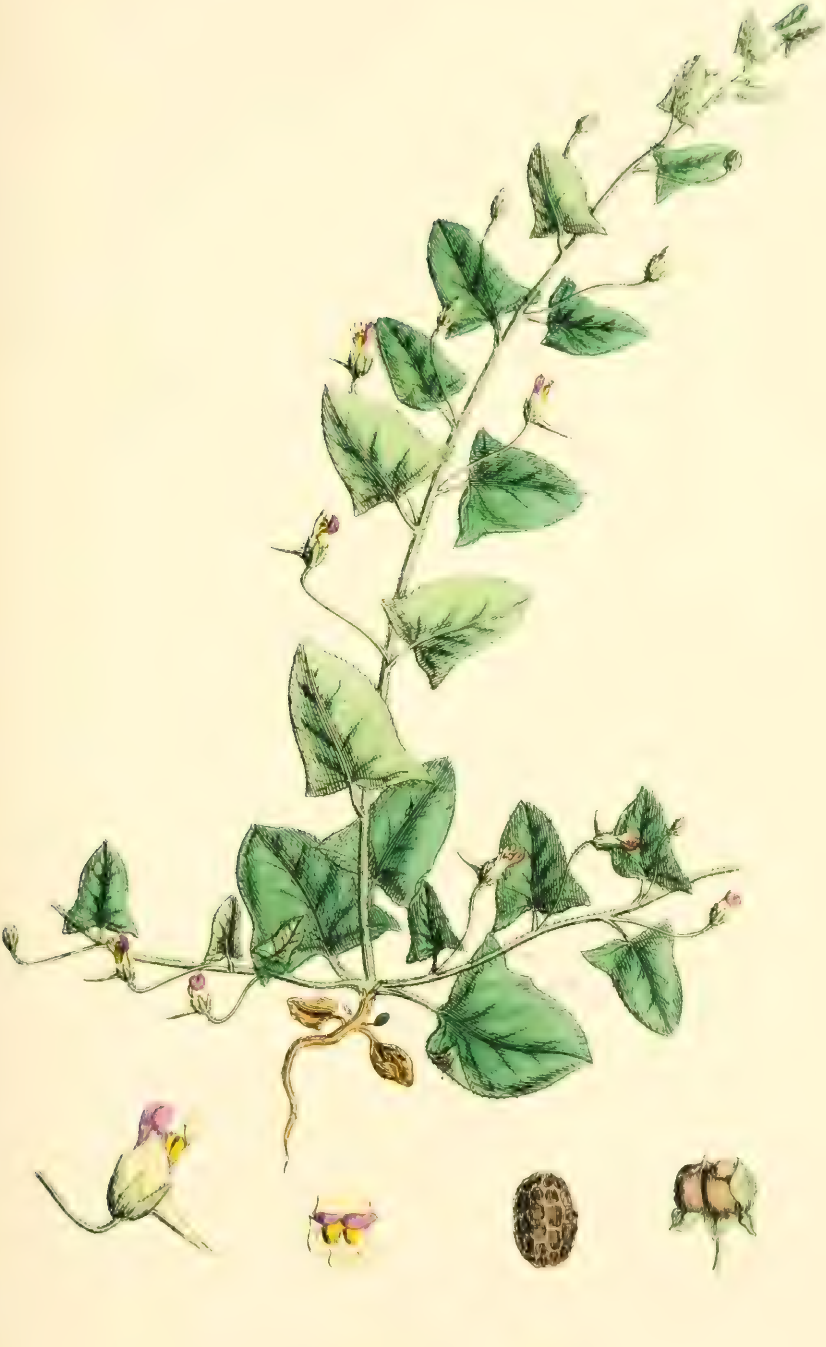
Antirrhinum Orontium   Corn Snapdragon.



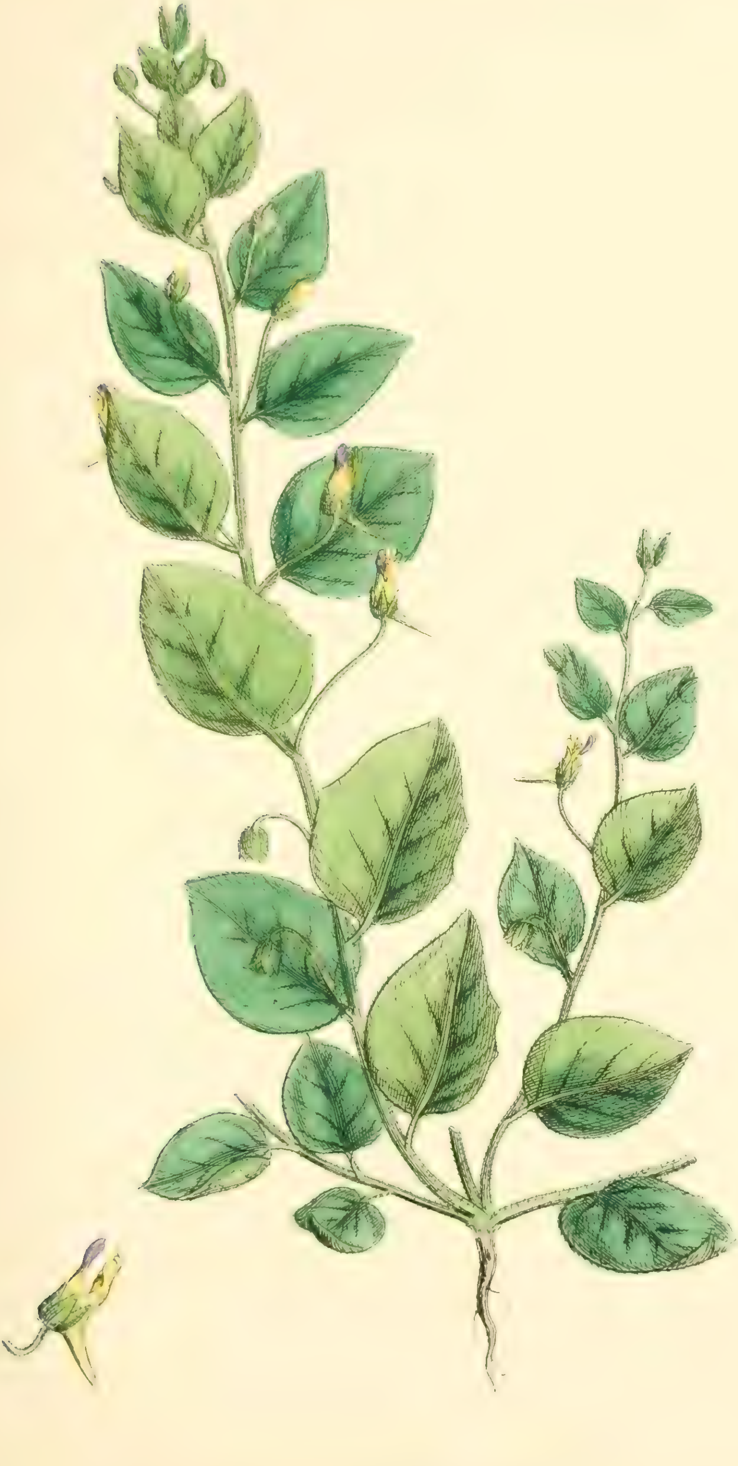


E.B. 502.

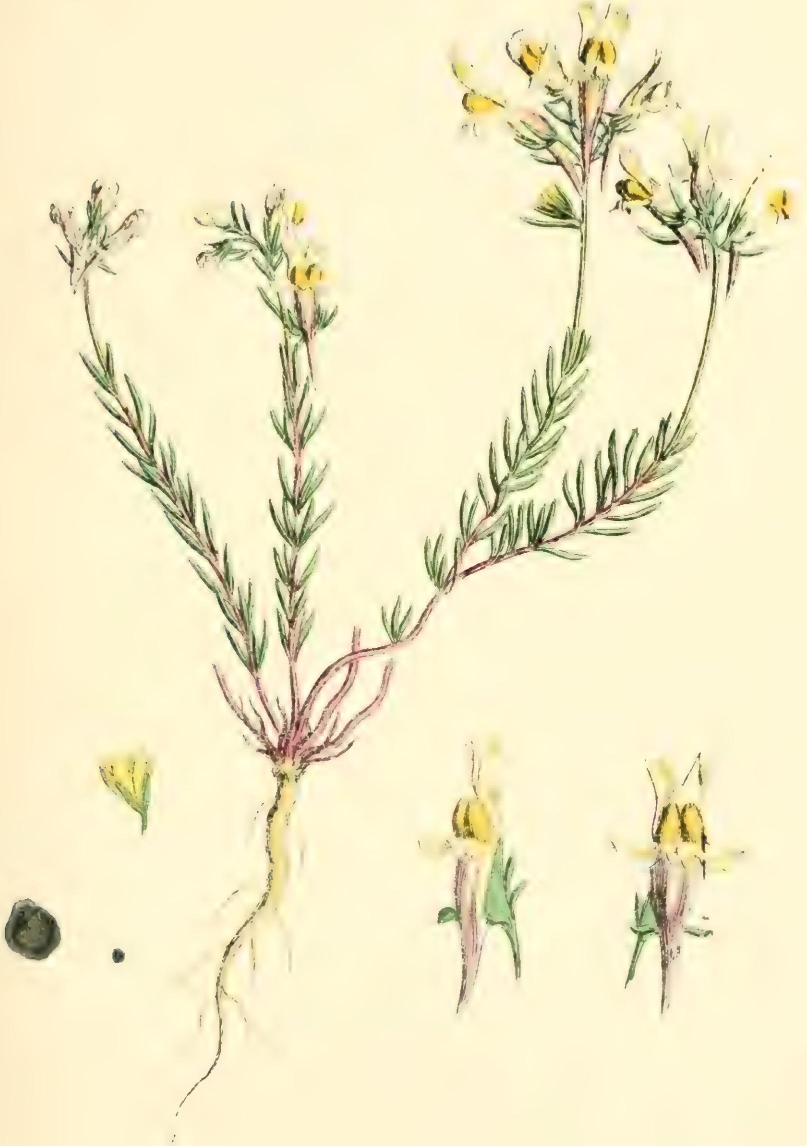
Linaria Cymbalaria. Ivy-leaved Toadflax



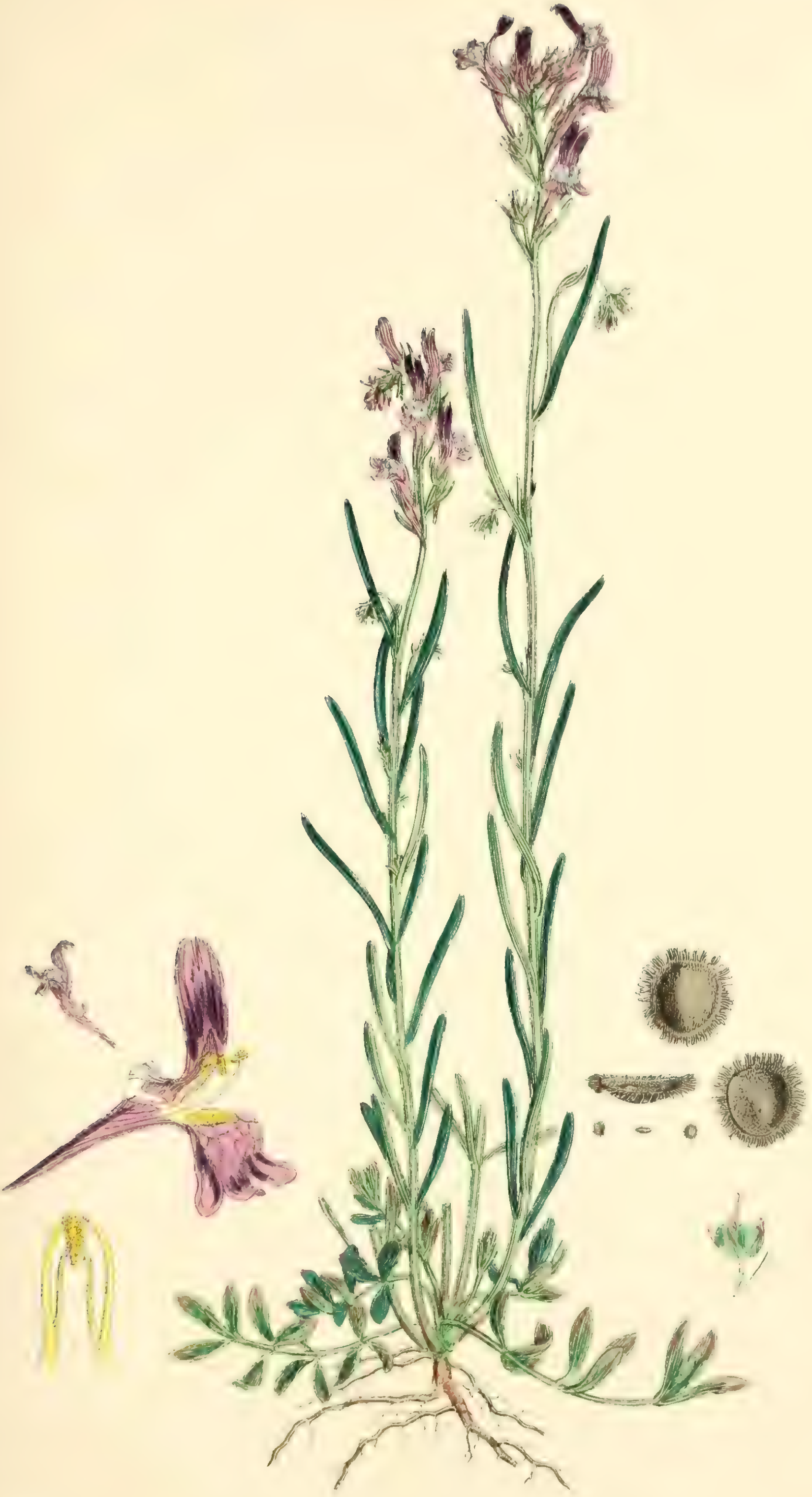
Linaria Elatine.   Sharp-leaved Fluellin.



Linaria spuria. Round-leaved Fluellin.

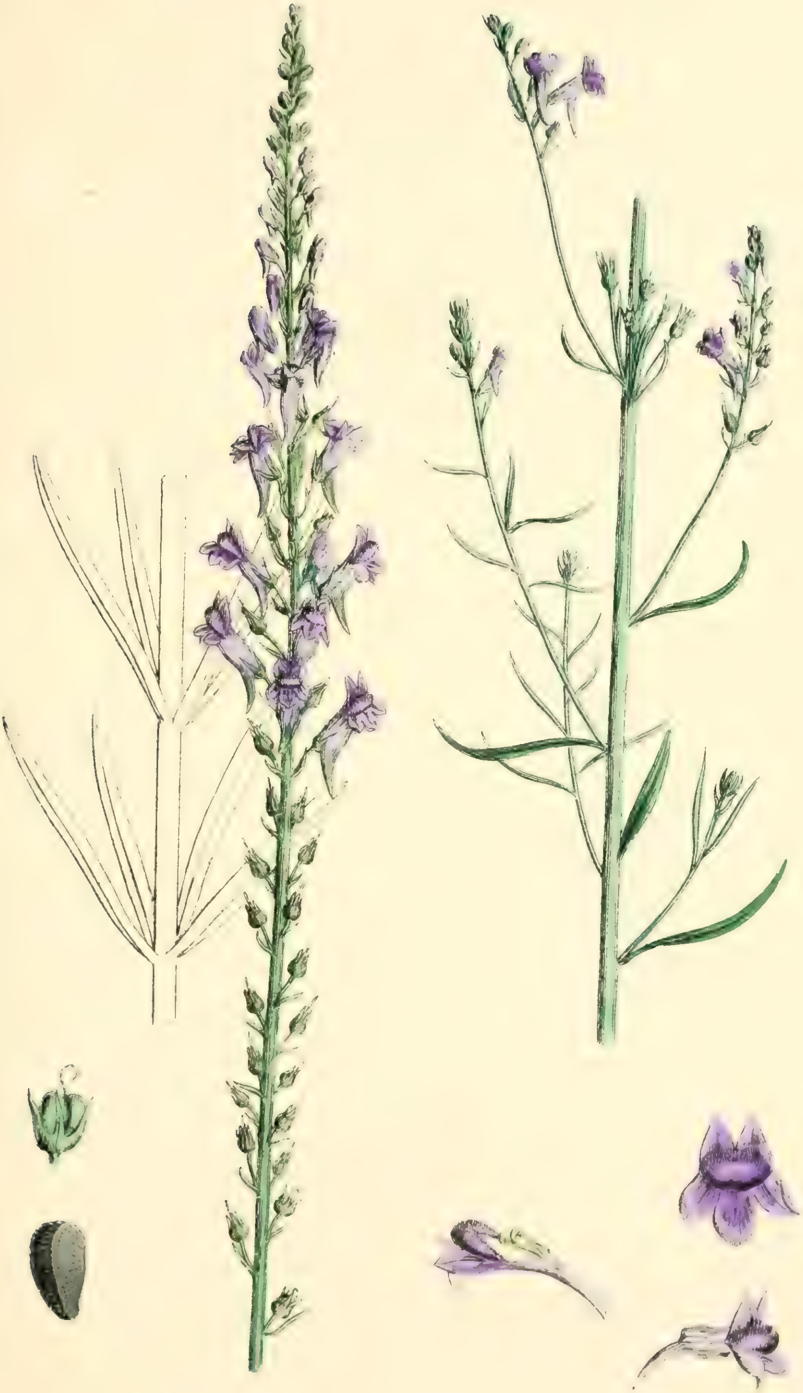


Linaria supina. Decumbent Toadflax.

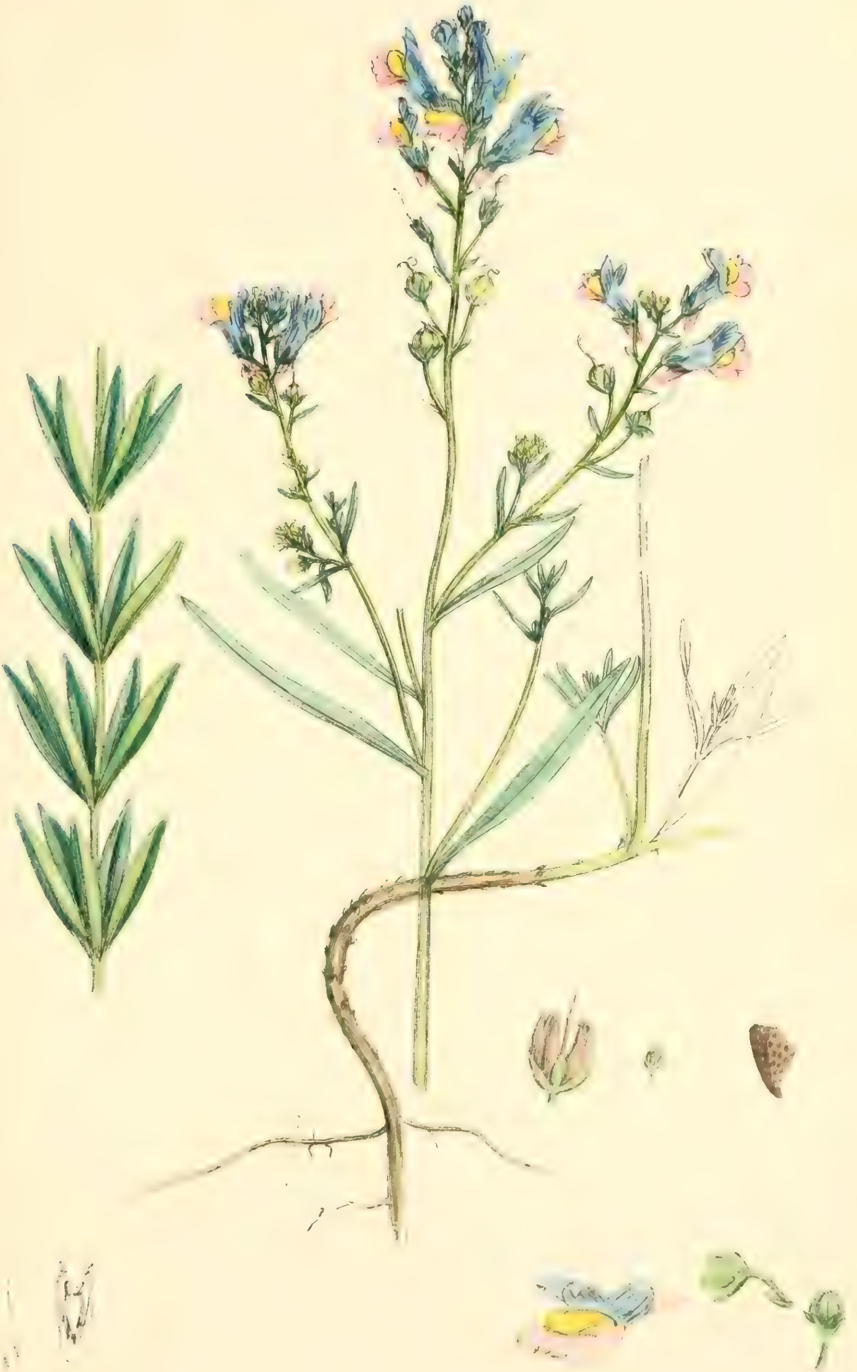


E. B. S. 2832.

Linaria Pelisseriana. Jersey Toadflax.

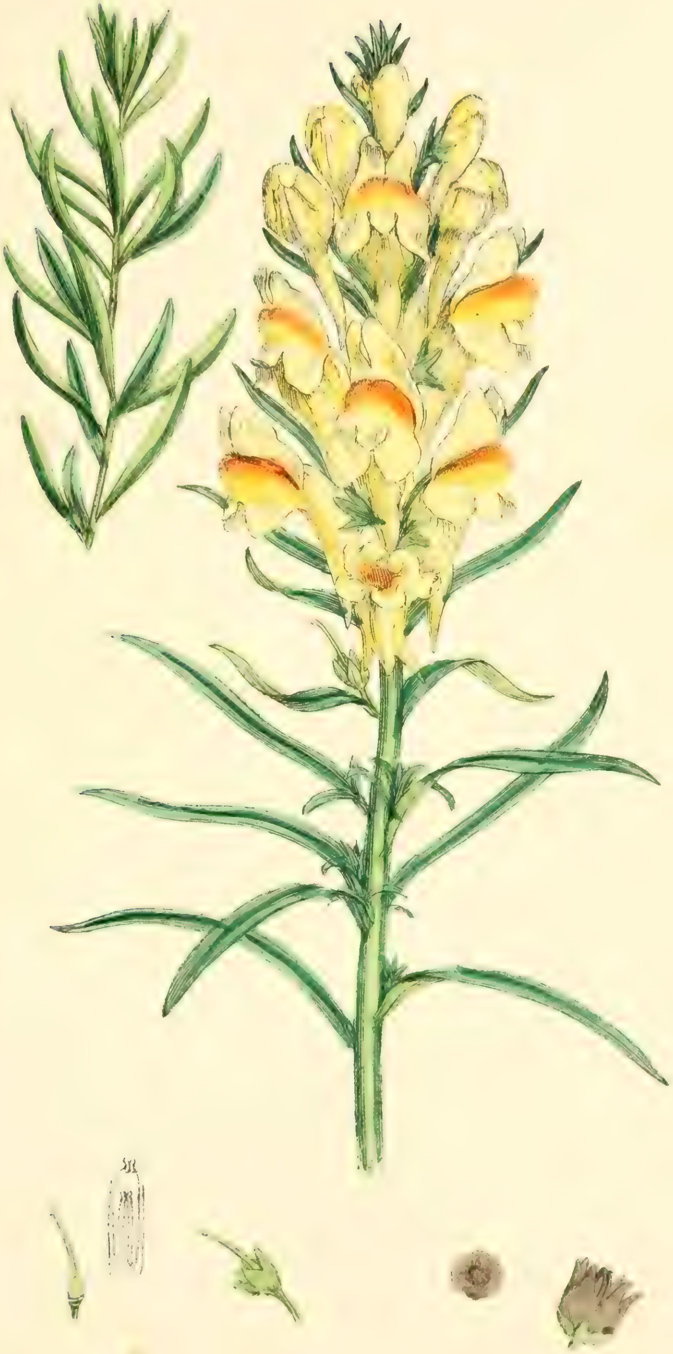


Linaria purpurea.   Purple Toadflax.



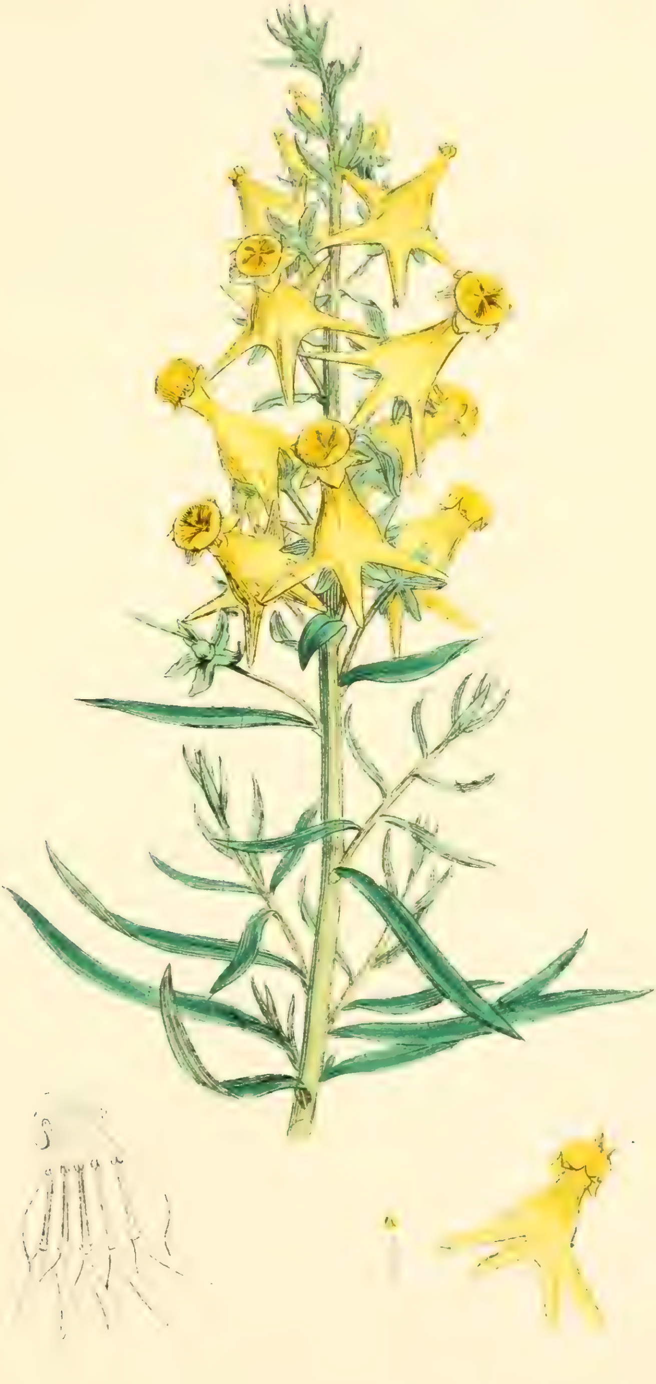
E. B. 1253.

Linaria repens.   Striped Toadflax.



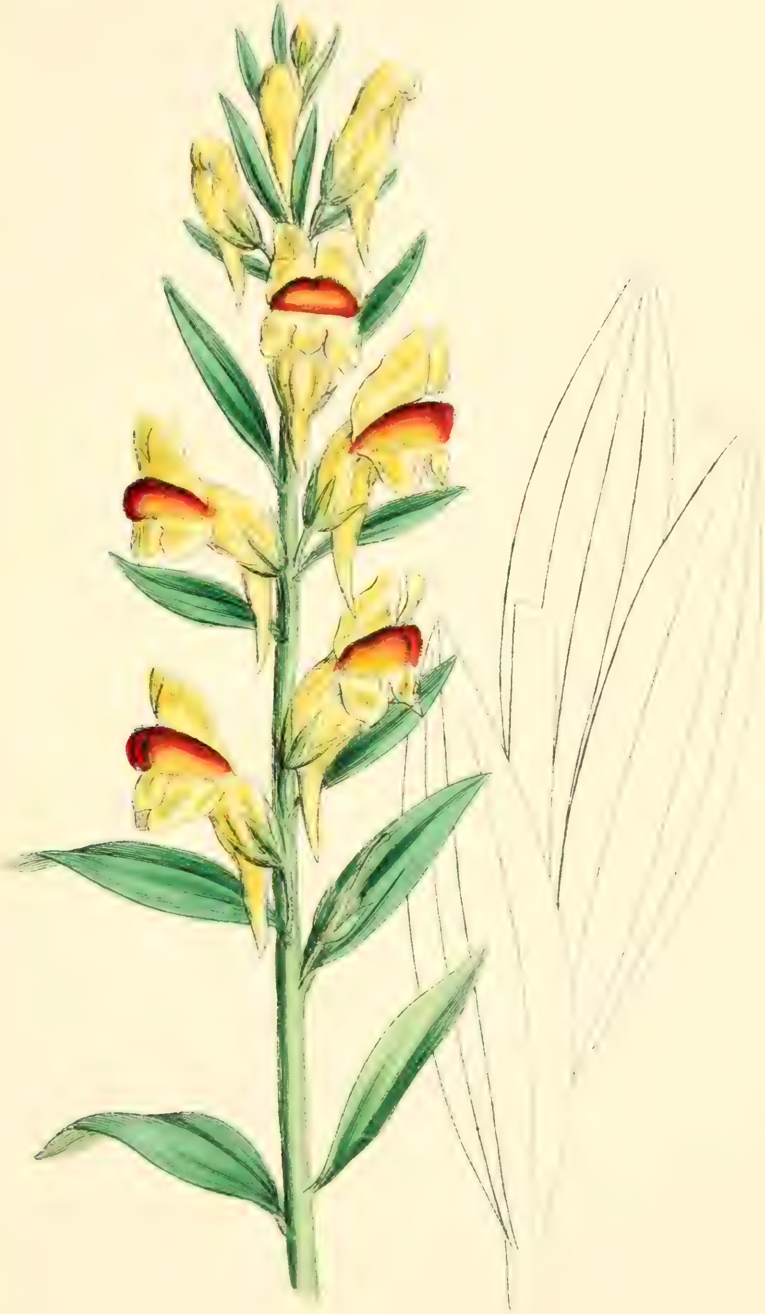
E.B. 658.

Linaria vulgaris, var. genuina. Yellow Toadflax, var. *α*.

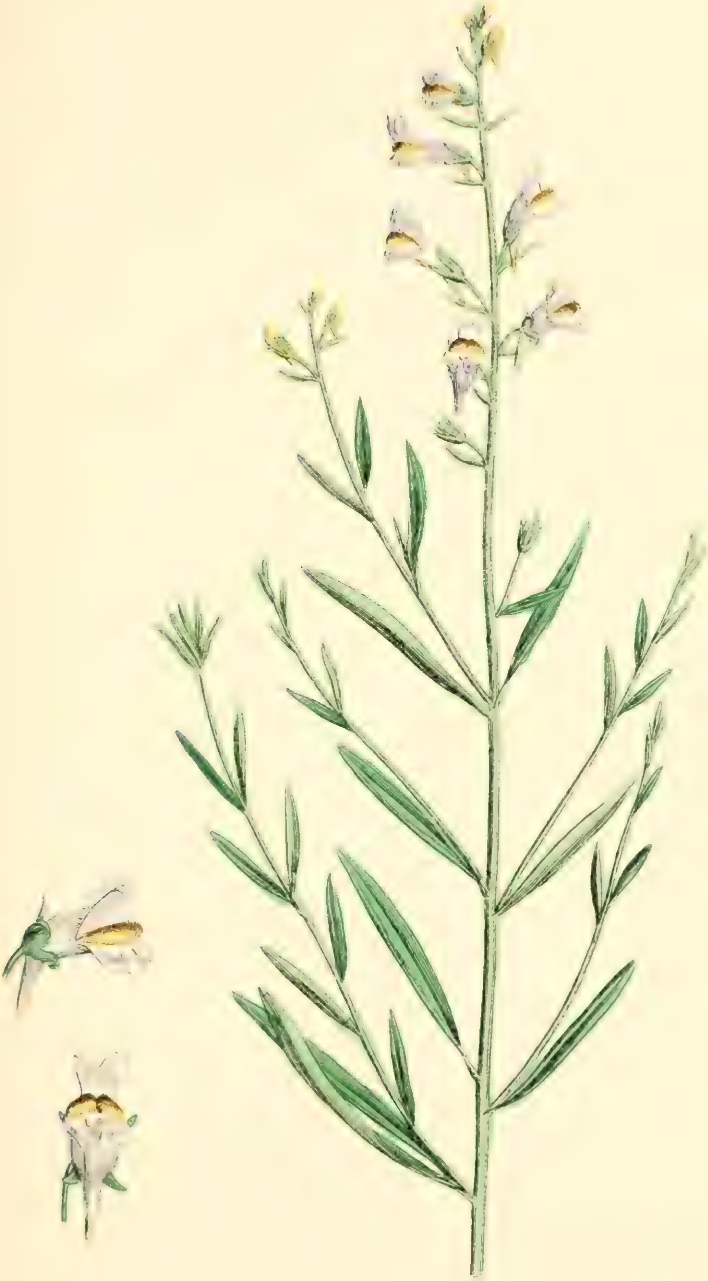


E.B. 260.

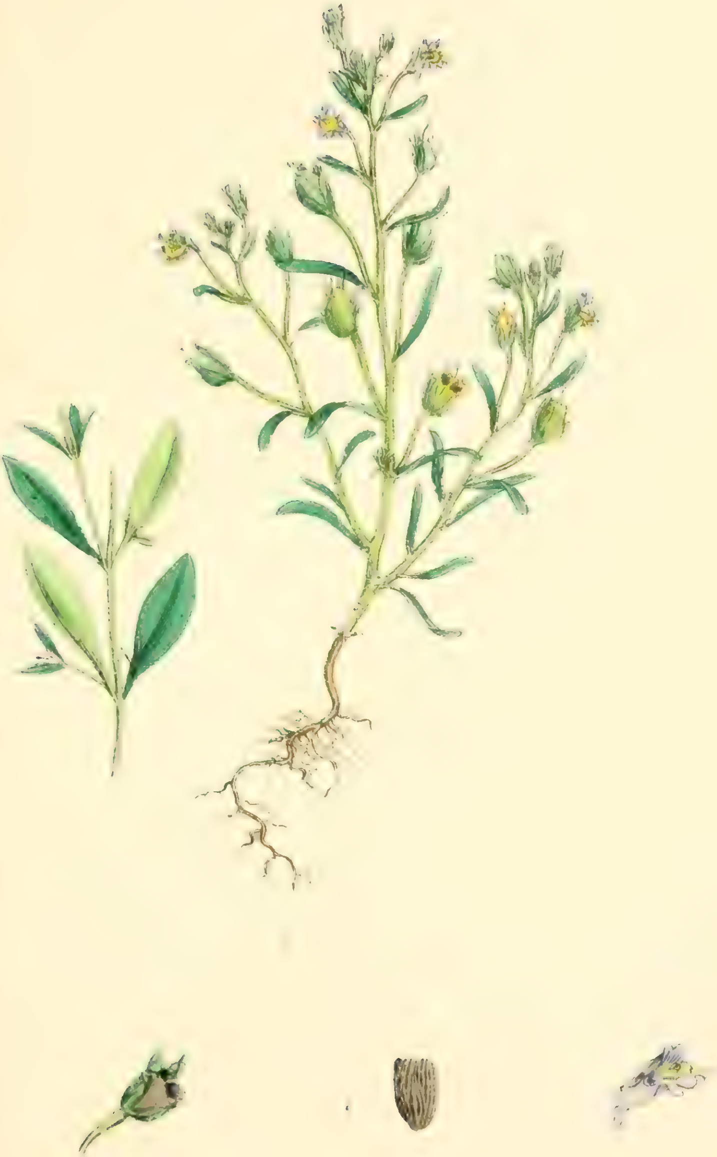
Linaria vulgaris, Peloria. Yellow Toadflax, monstrous state.



Linaria vulgaris, var. latifolia. Yellow Toadflax, var. β.

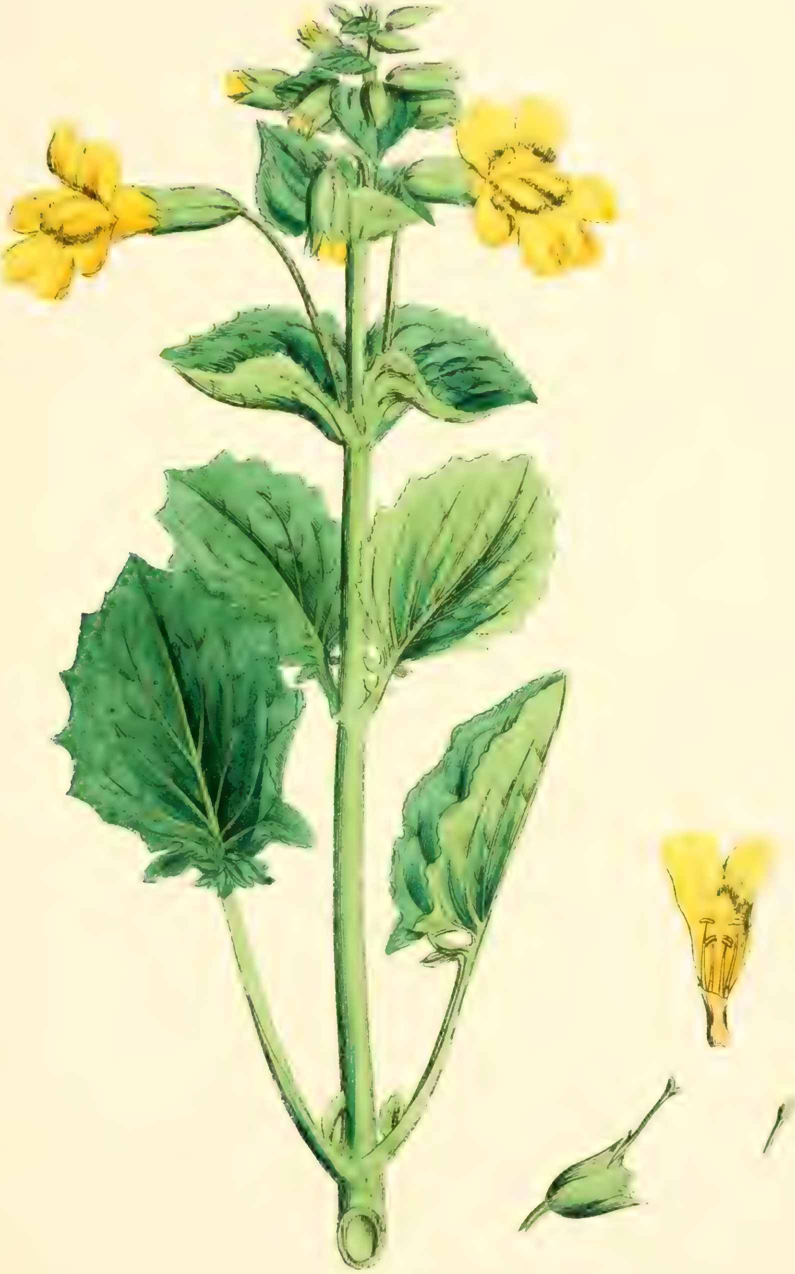


Linaria vulgari repens. Hybrid between Yellow and Striped Toadflax.

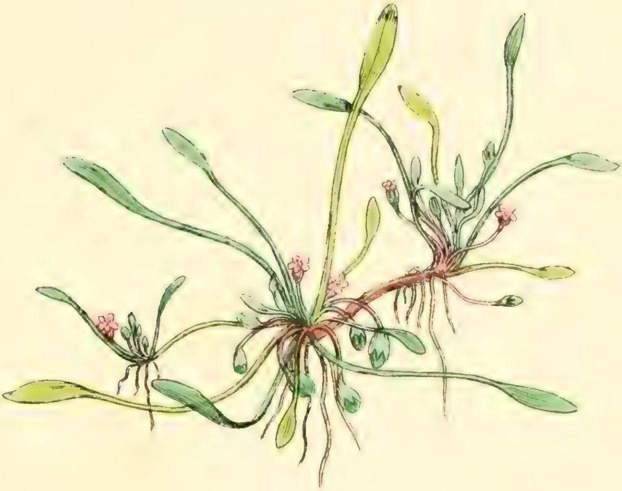


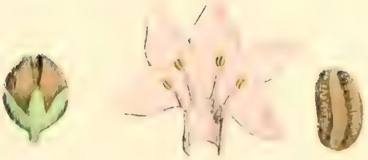
E. B. 2014.

Linaria minor.   Lead Toadflax.



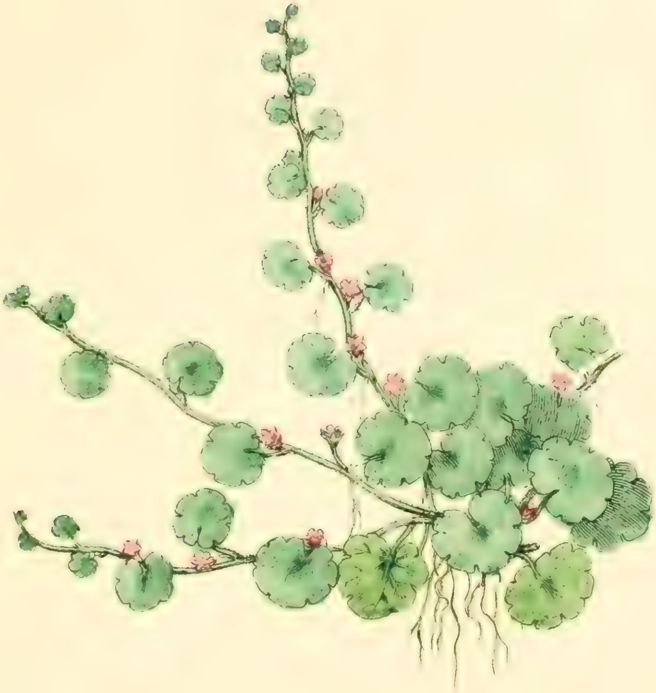
Mimulus luteus. Yellow Monkey-flower.





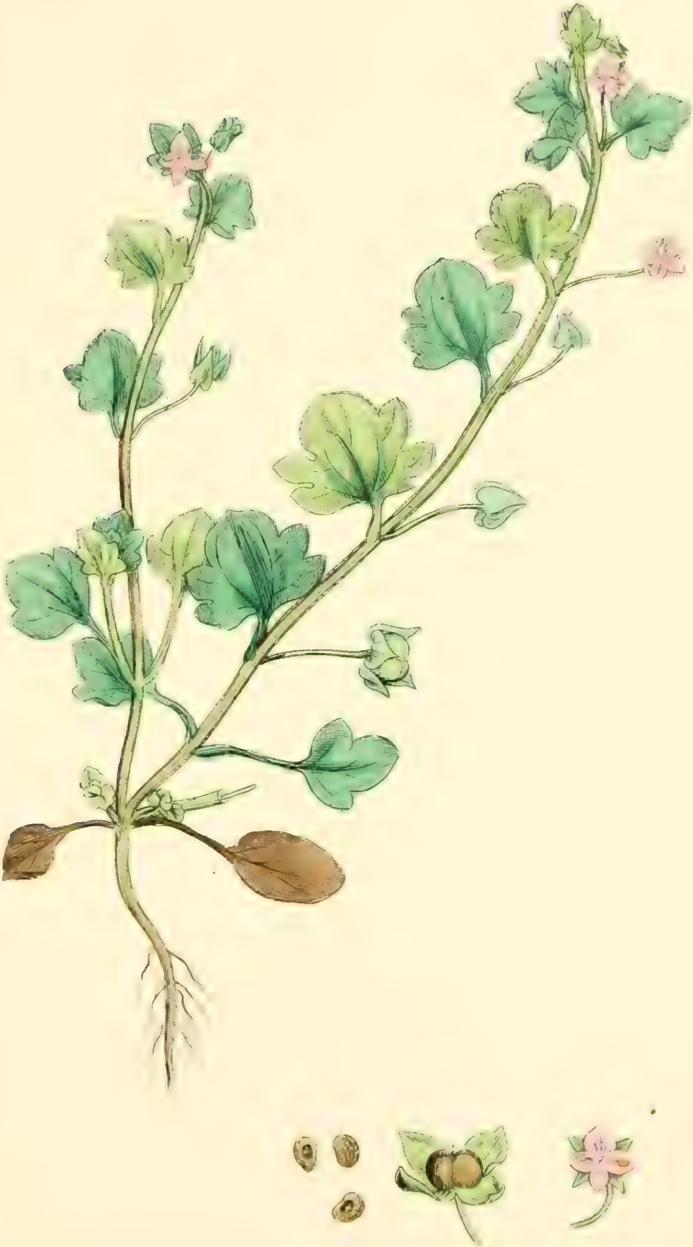
E. B. 357.

Limosella aquatica. Common Mudwort.



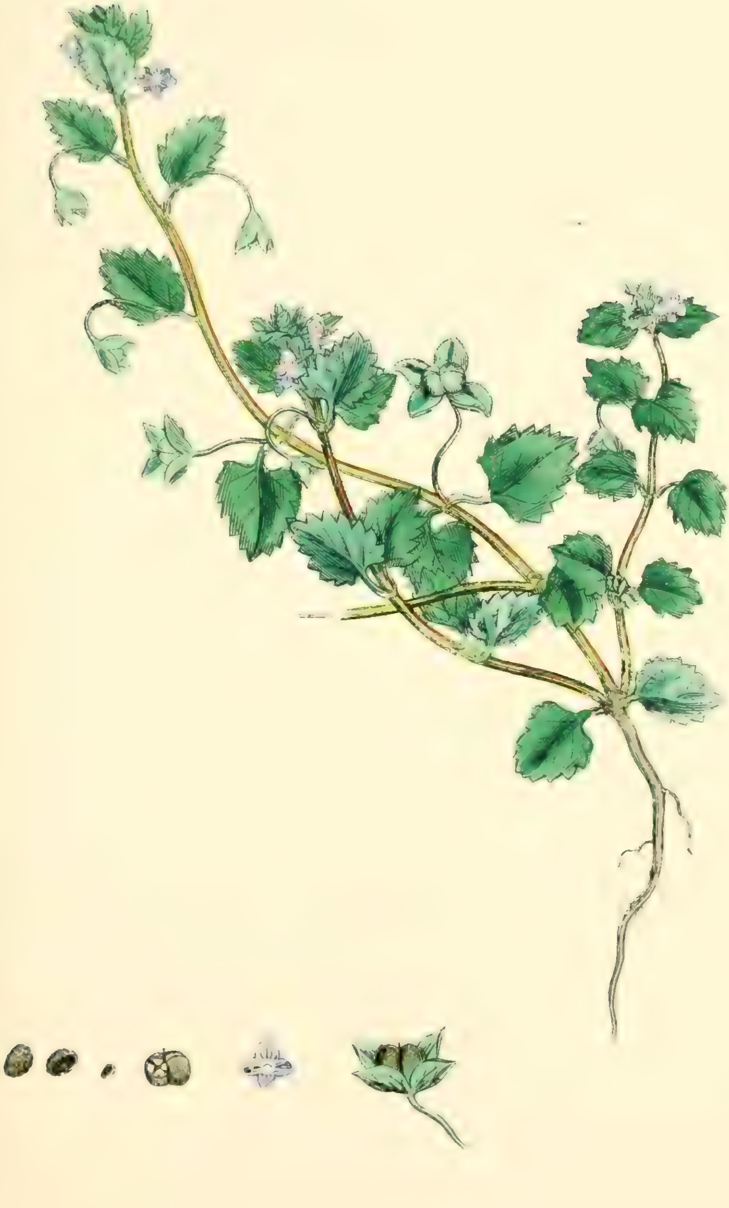
E. B. 694.

Sibthorpia Europæa. Cornish Moneywort.



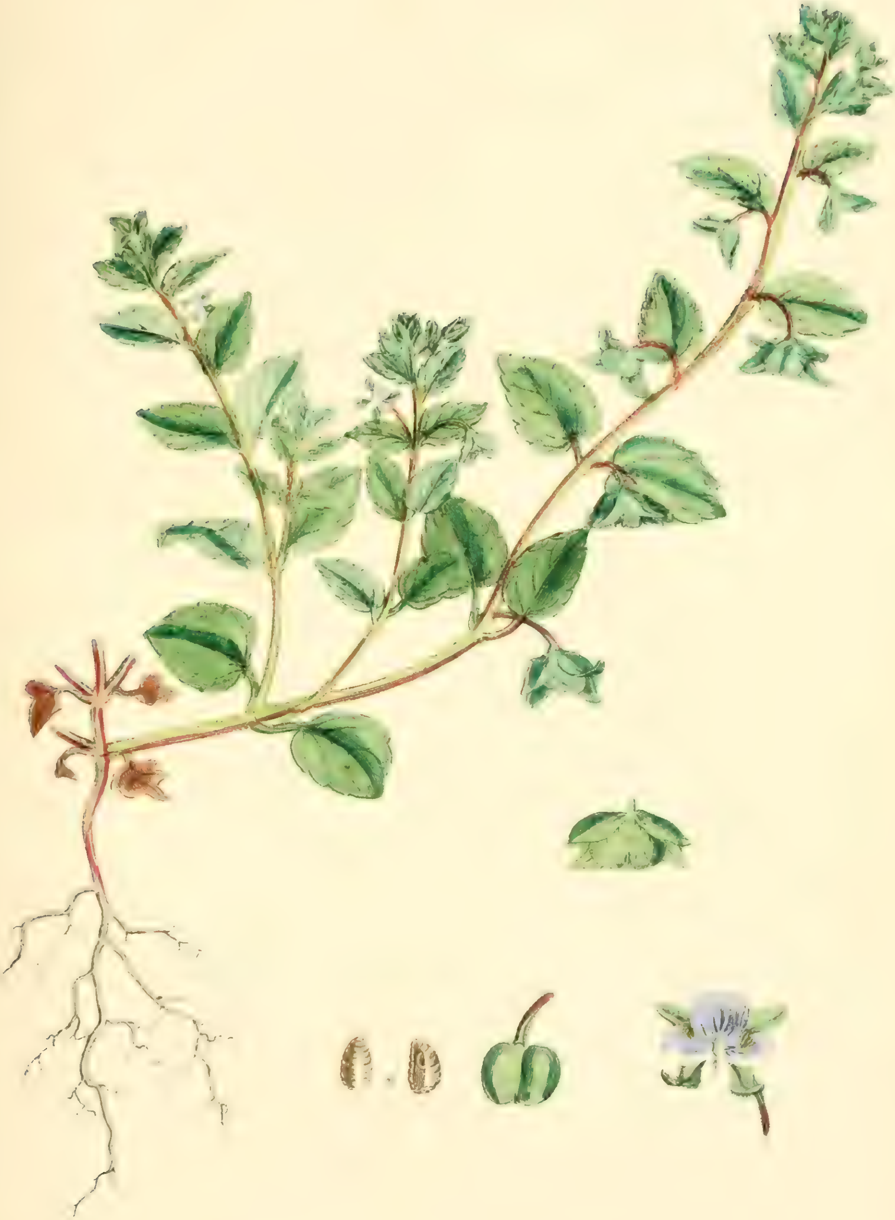
E. B. 784.

Veronica hederifolia. Ivy-leaved Speedwell.



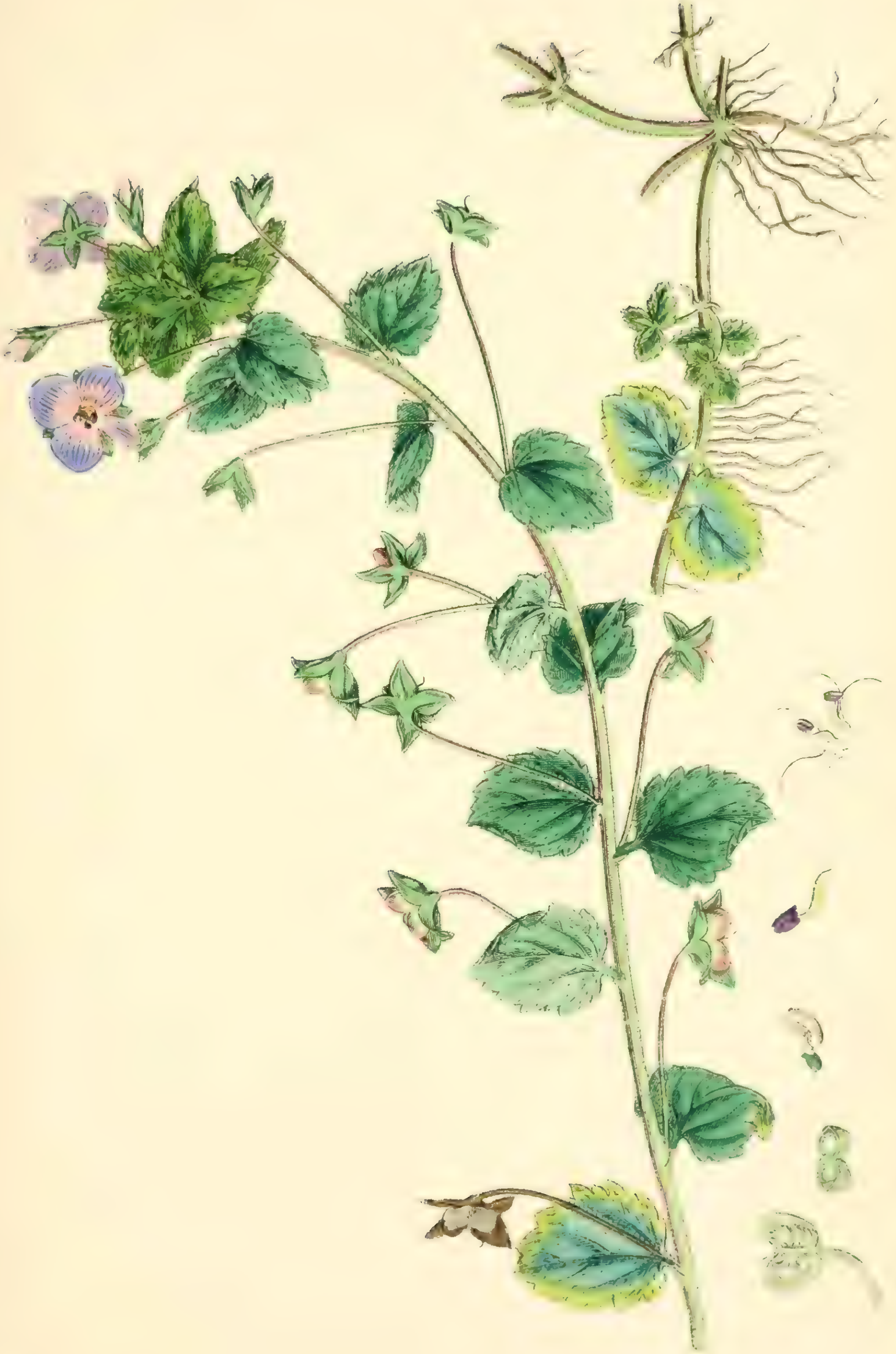
E. B. 783.

Veronica polita. Grey Procumbent Speedwell



. B. S. 2603.

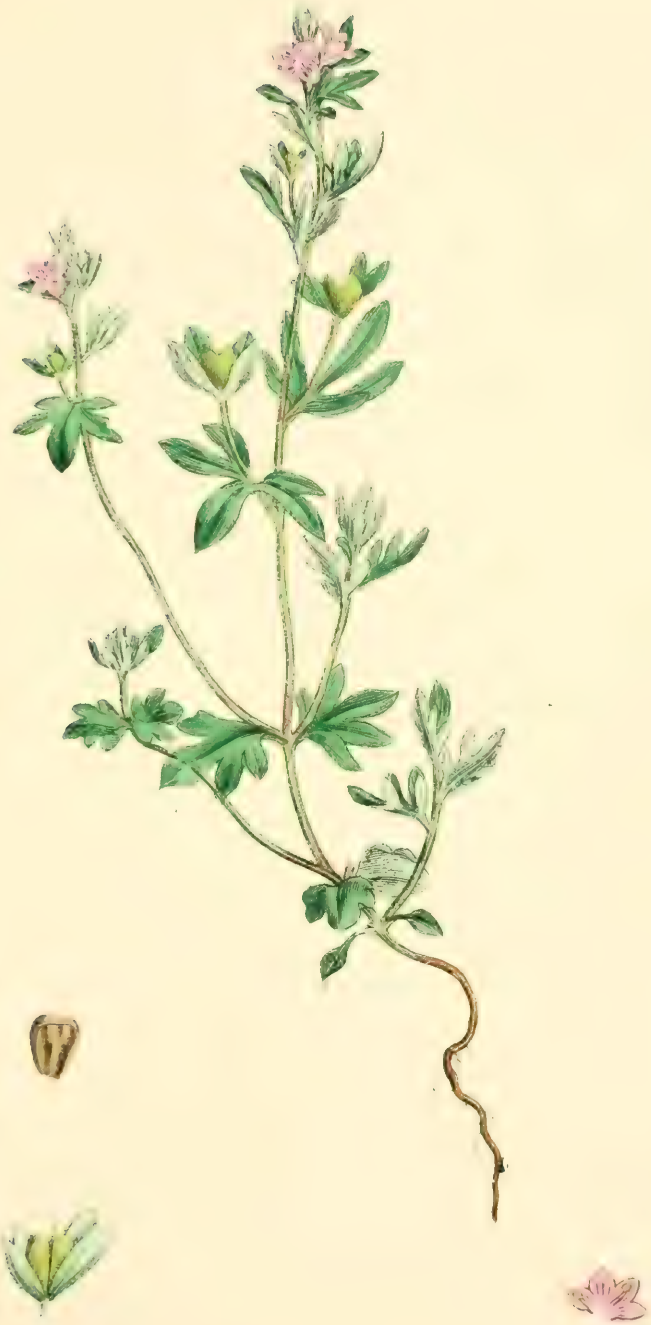
Veronica agrestis. Green Procumbent Speedwell.



.B.S. 2769.

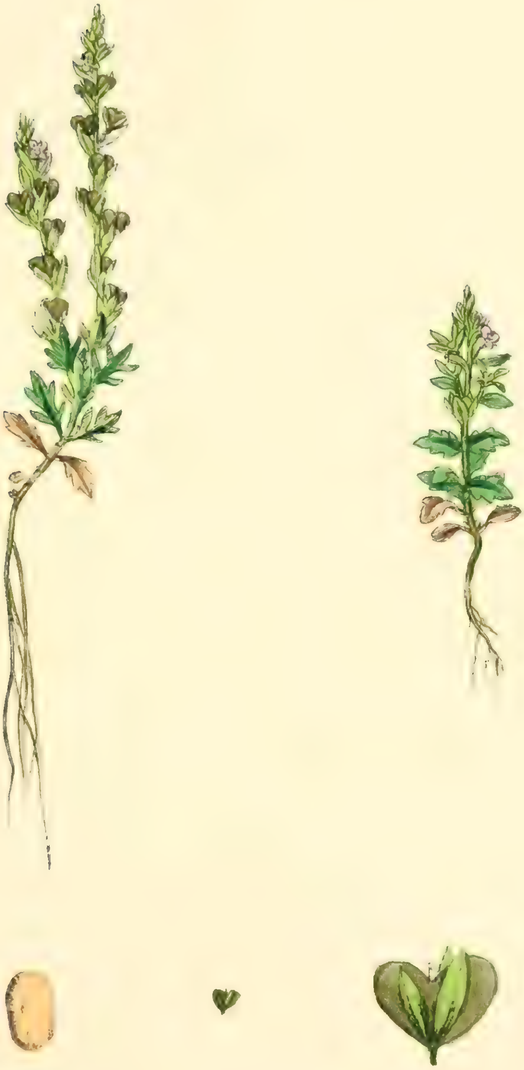
Veronica Buxbaumii. Buxbaum's Speedwell.

DCCCCLXXIV.



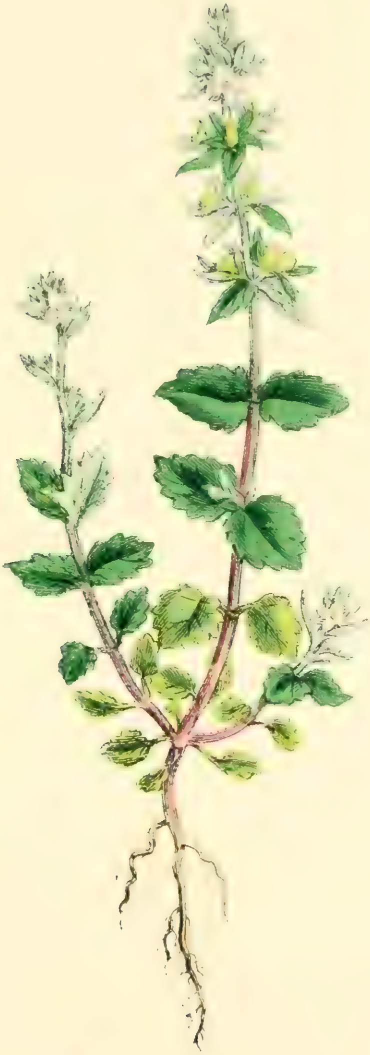
E. B. 26.

Veronica triphyllos Trifid Speedwell.



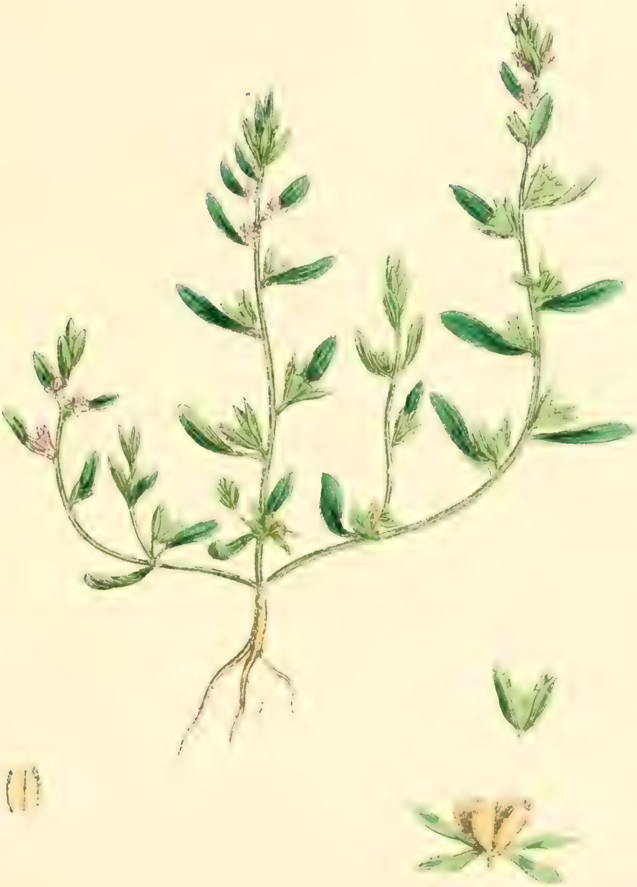
E. B. 25.

Veronica verna. Vernal Speedwell.

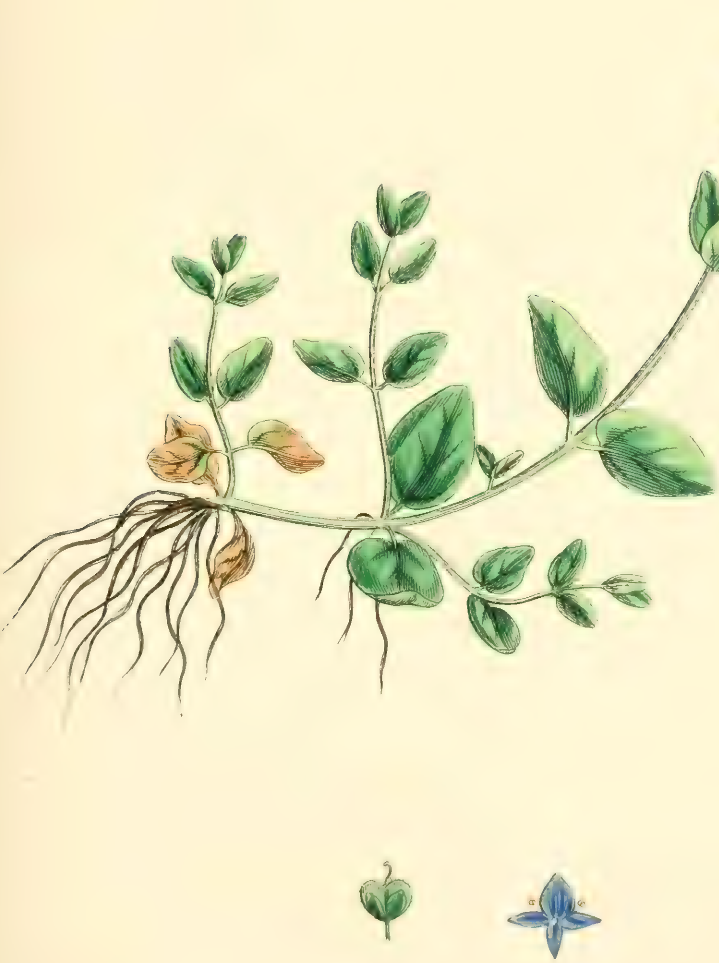


E. B. 734.

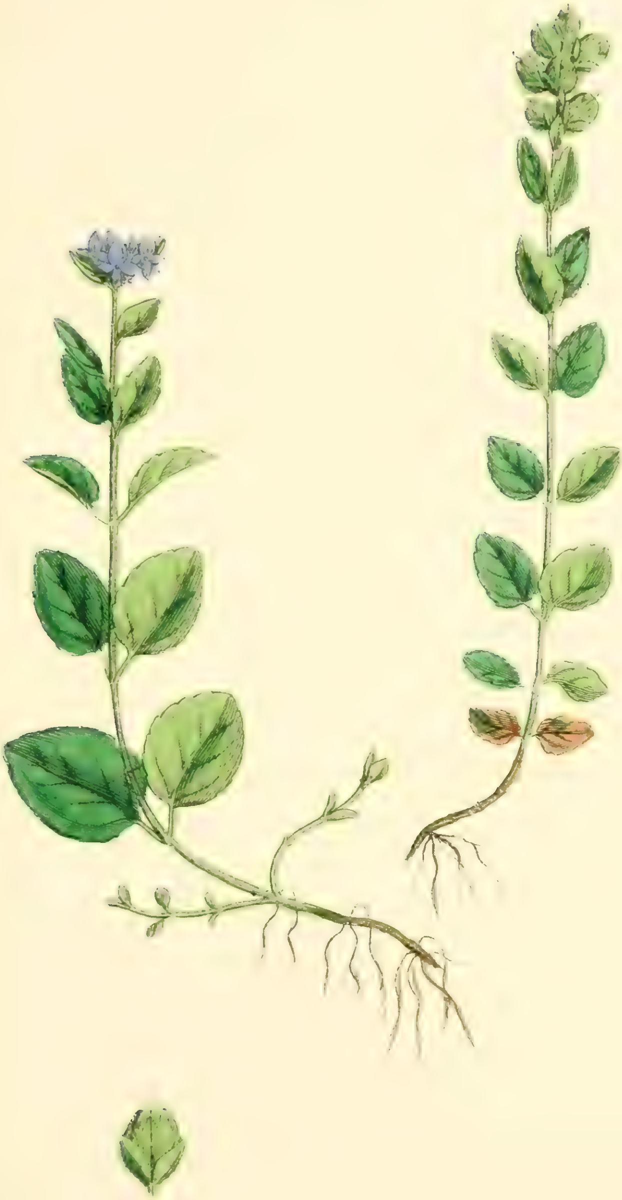
Veronica arvensis. Wall Speedwell.



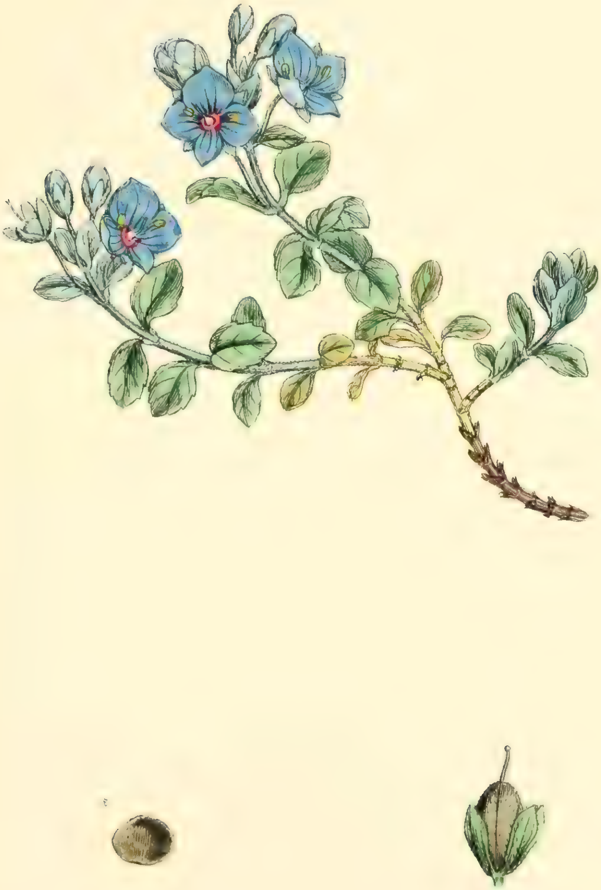
Veronica peregrina. Annual Smooth Speedwell.



Veronica humifusa. Prostrate Smooth Speedwell.

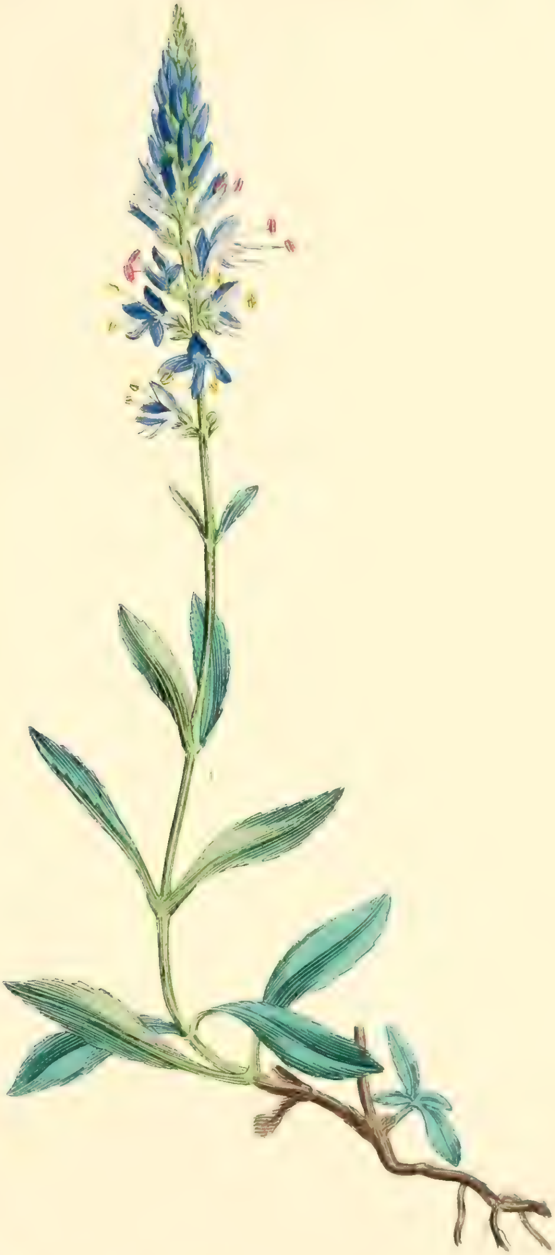


Veronica alpina. Erect Alpine Speedwell.



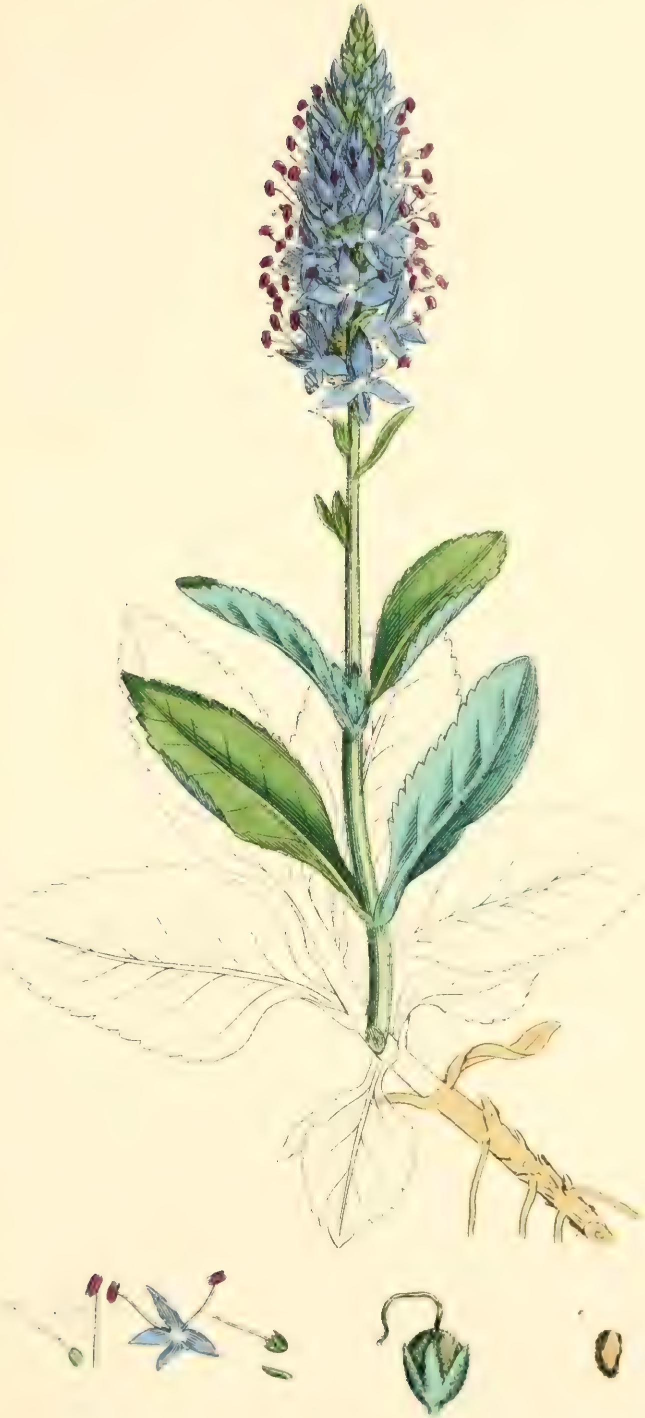
E. B. 1027.

Veronica saxatilis. Blue Rock Speedwell.



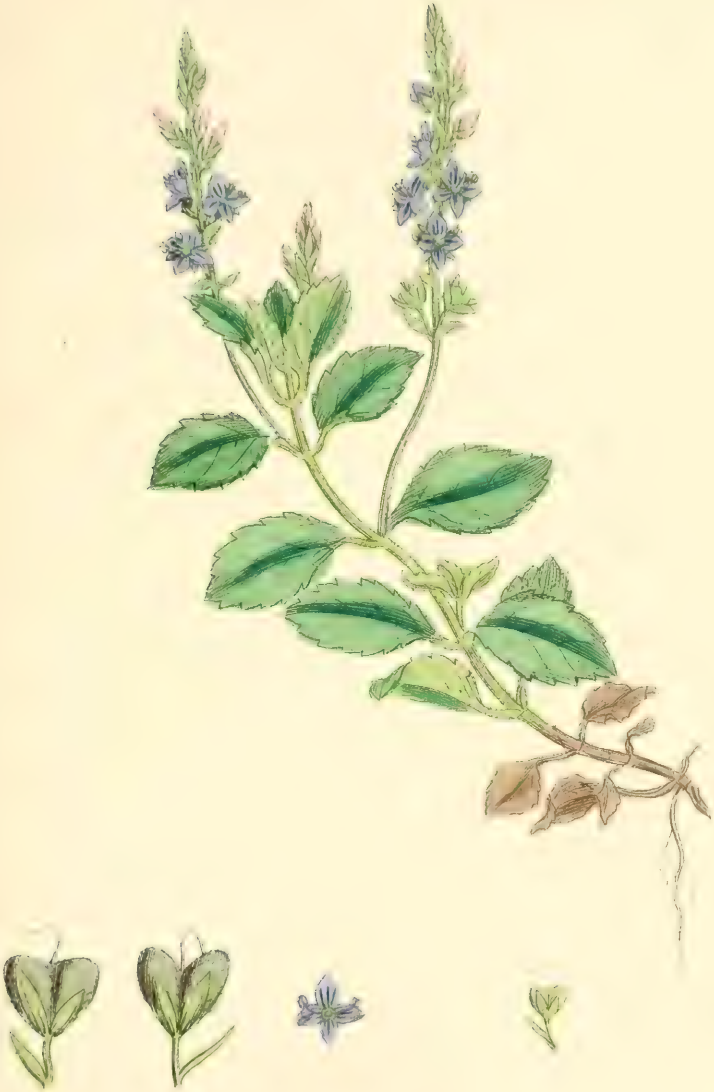
E. B. 2.

Veronica spicata, var. genuina. Spiked Speedwell, var. *α*.



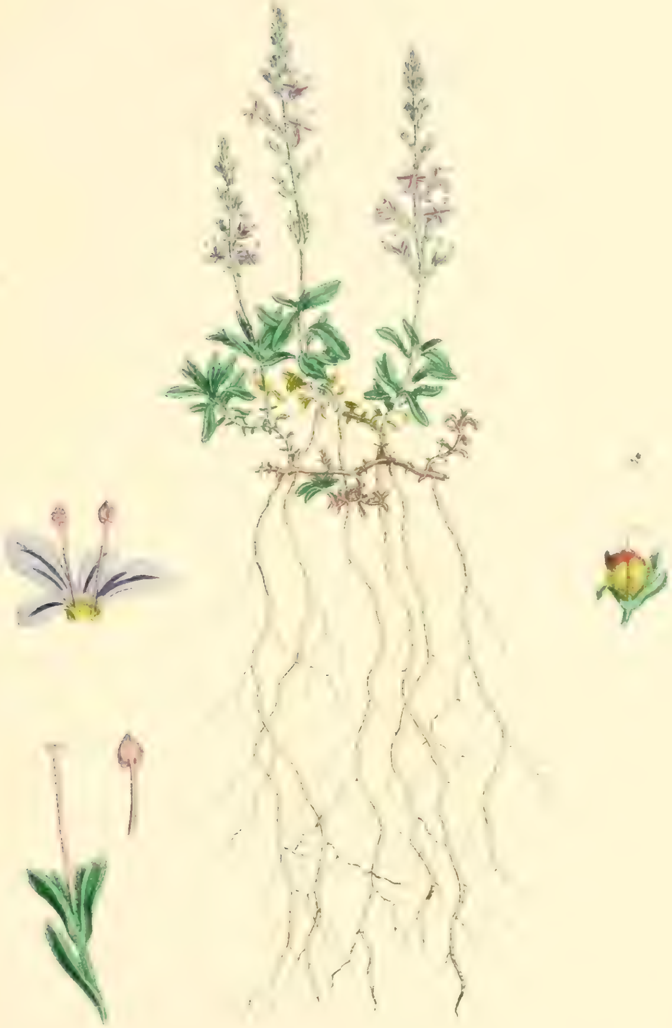
E. B. 673.

Veronica spicata, var. hybrida. Spiked Speedwell, var. β.



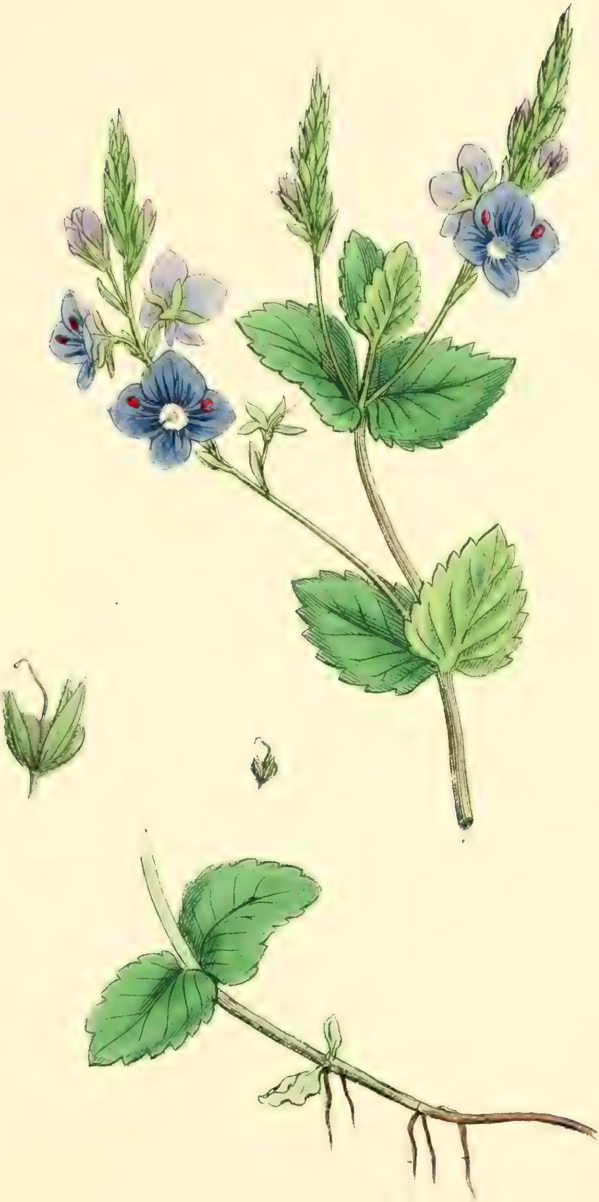
E. B. 765.

Veronica officinalis, var. genuina. Common Speedwell, var. *a*.



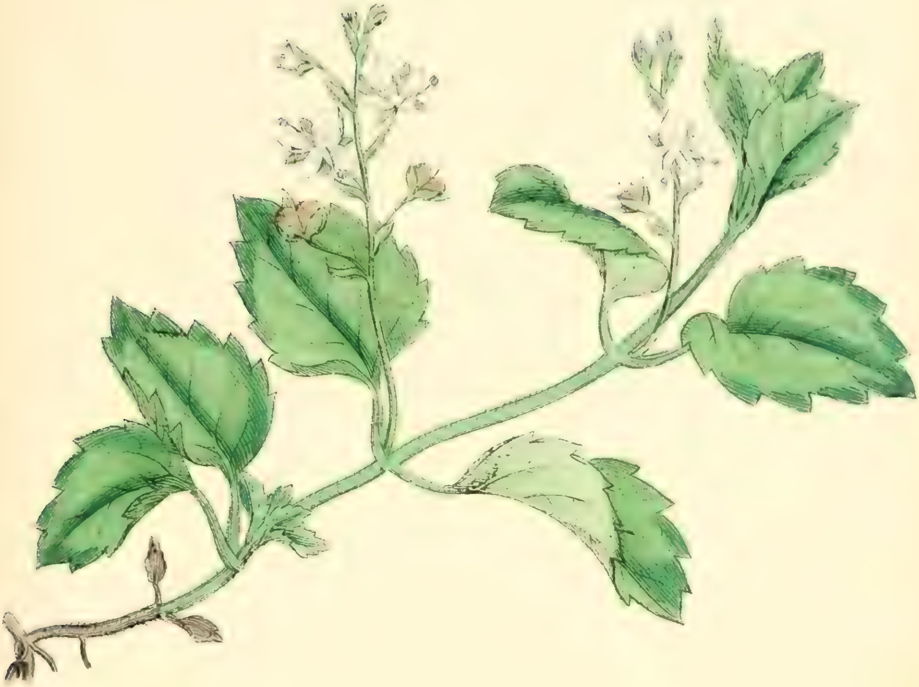
E. B. S. 2673.

Veronica officinalis, var. hirsuta. Common Speedwell, var. β.



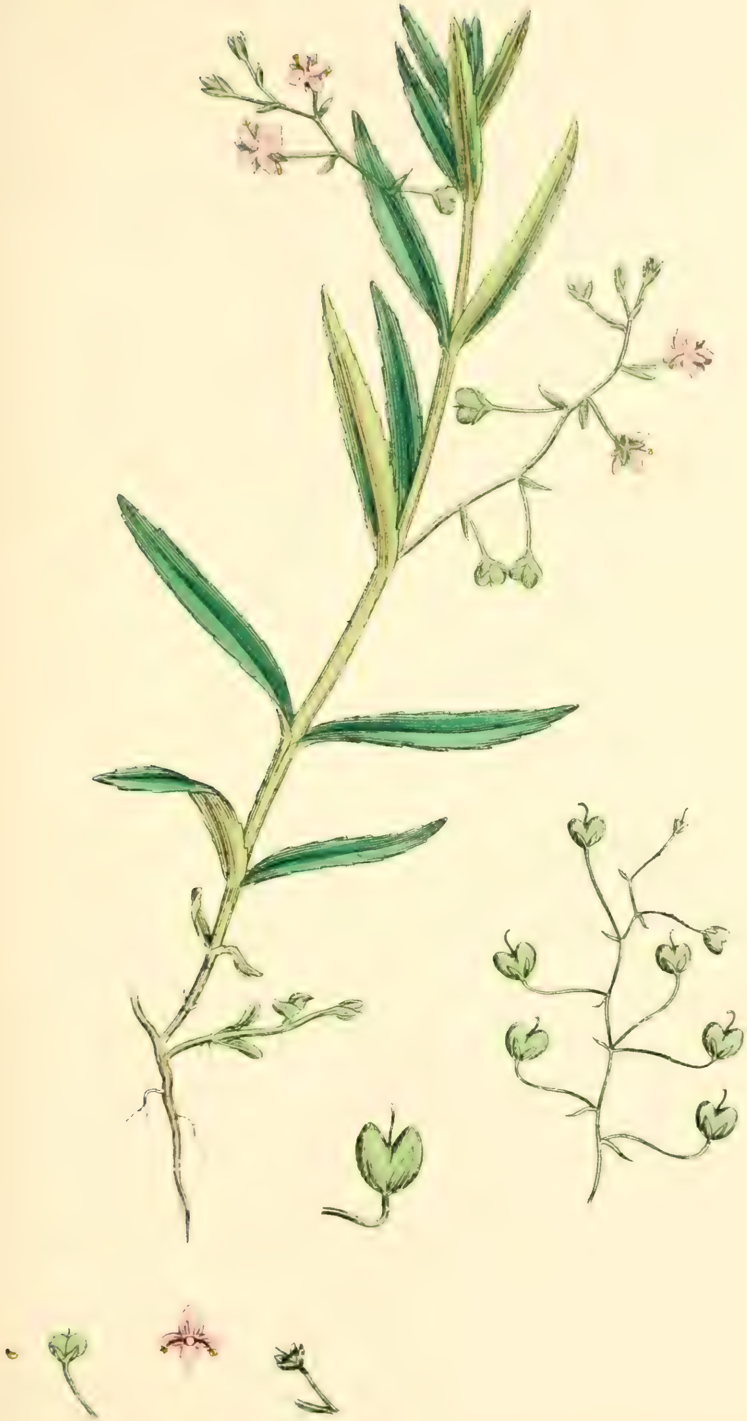
E. B. 623.

Veronica Chamædrys. Germander Speedwell.



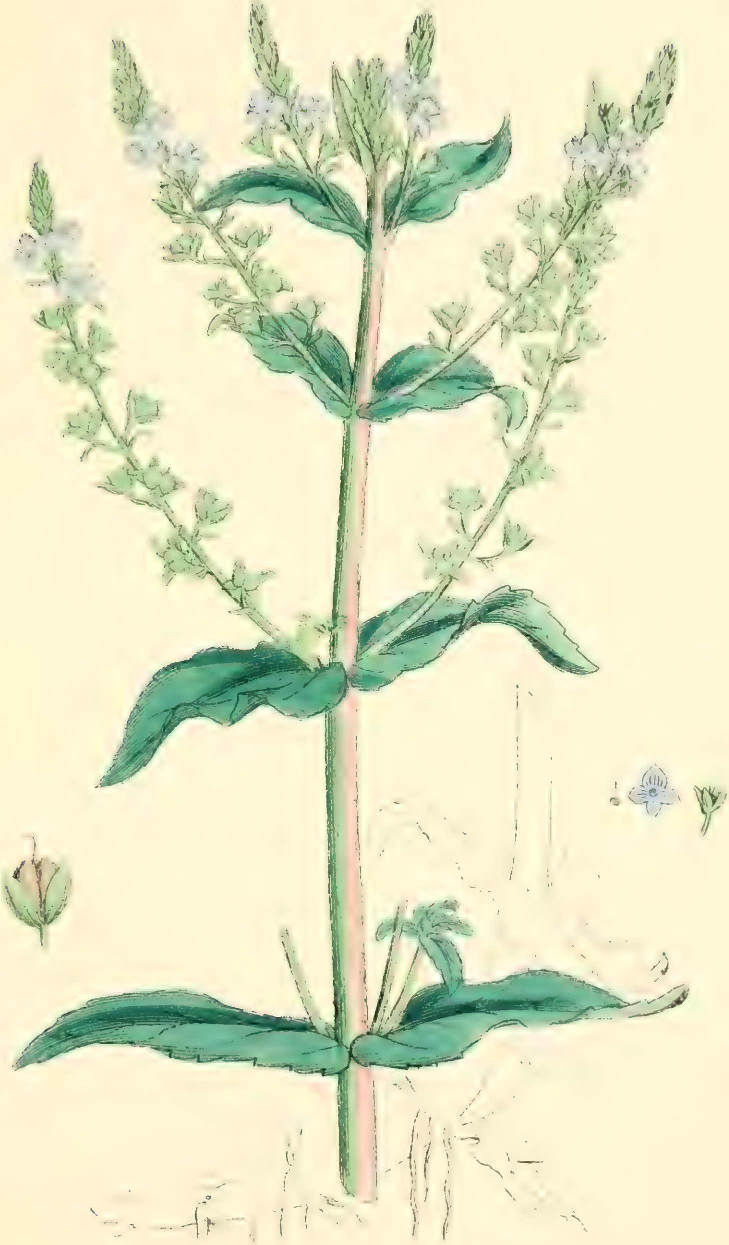
E. B. 766.

Veronica montana. Mountain Speedwell.



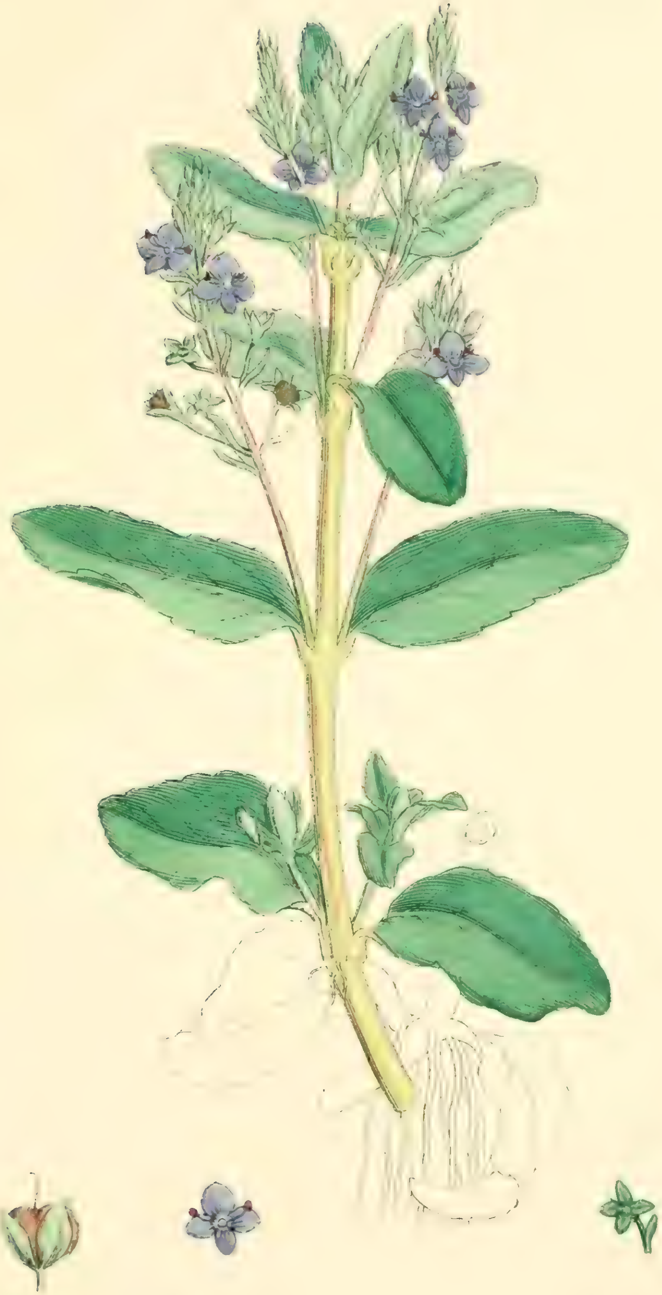
E.B. 782.

Veronica scutellata. Marsh Speedwell.



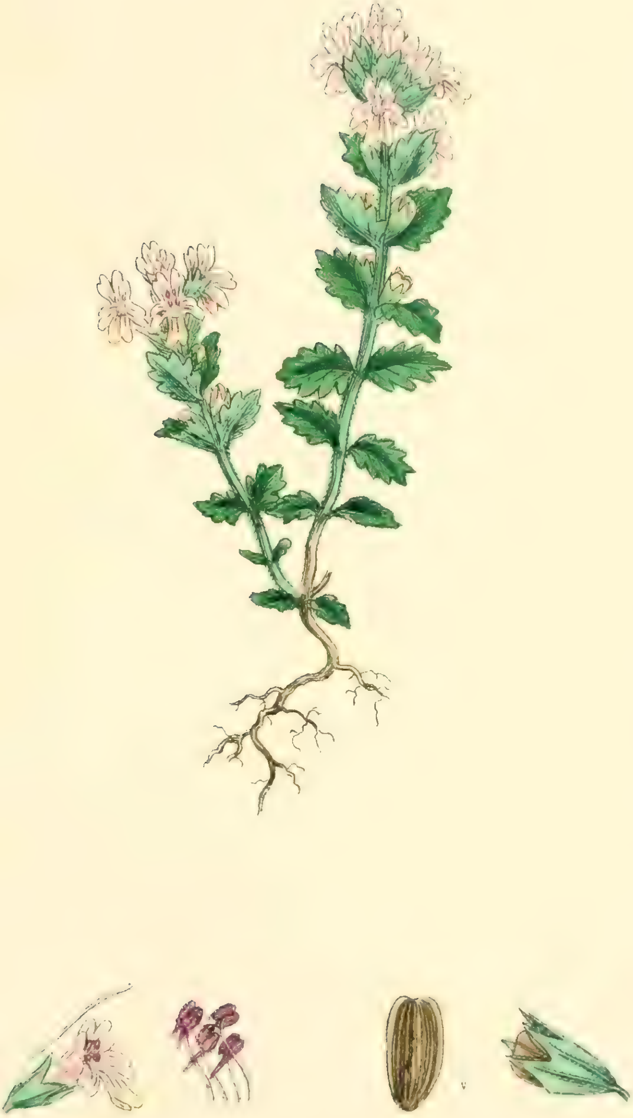
E. B. 781.

Veronica Anagallis. **Water Speedwell.**



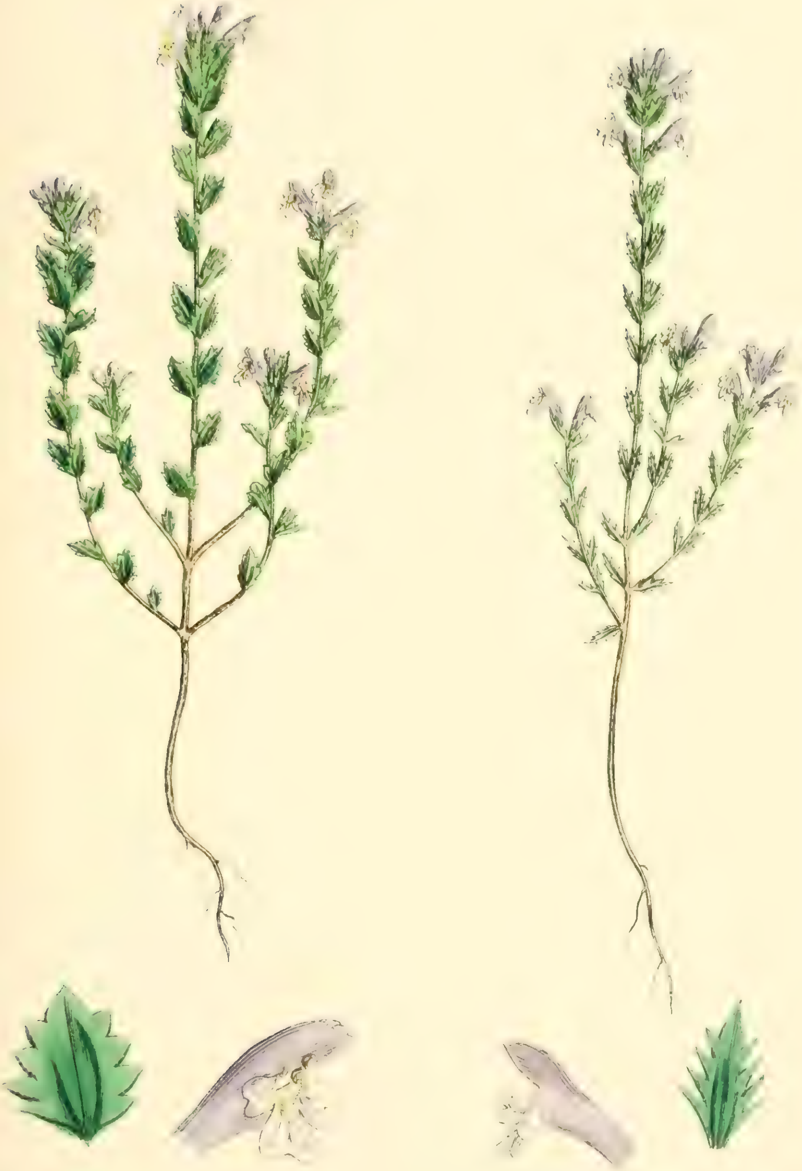
E. B. 655.

Veronica Beccabunga. Brooklime.

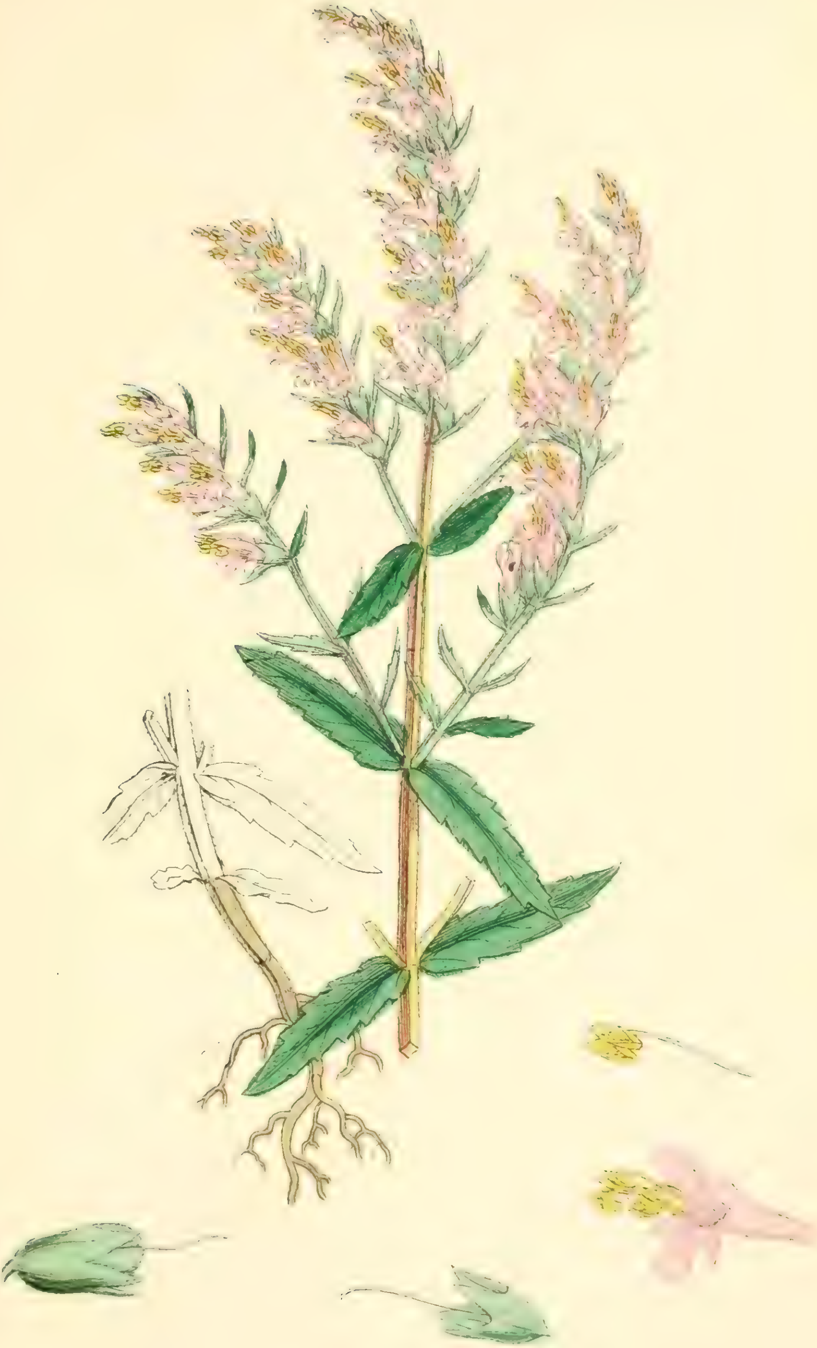


E. B. 1416.

Euphrasia officinalis, var. genuina. Common Eyebright, var. α

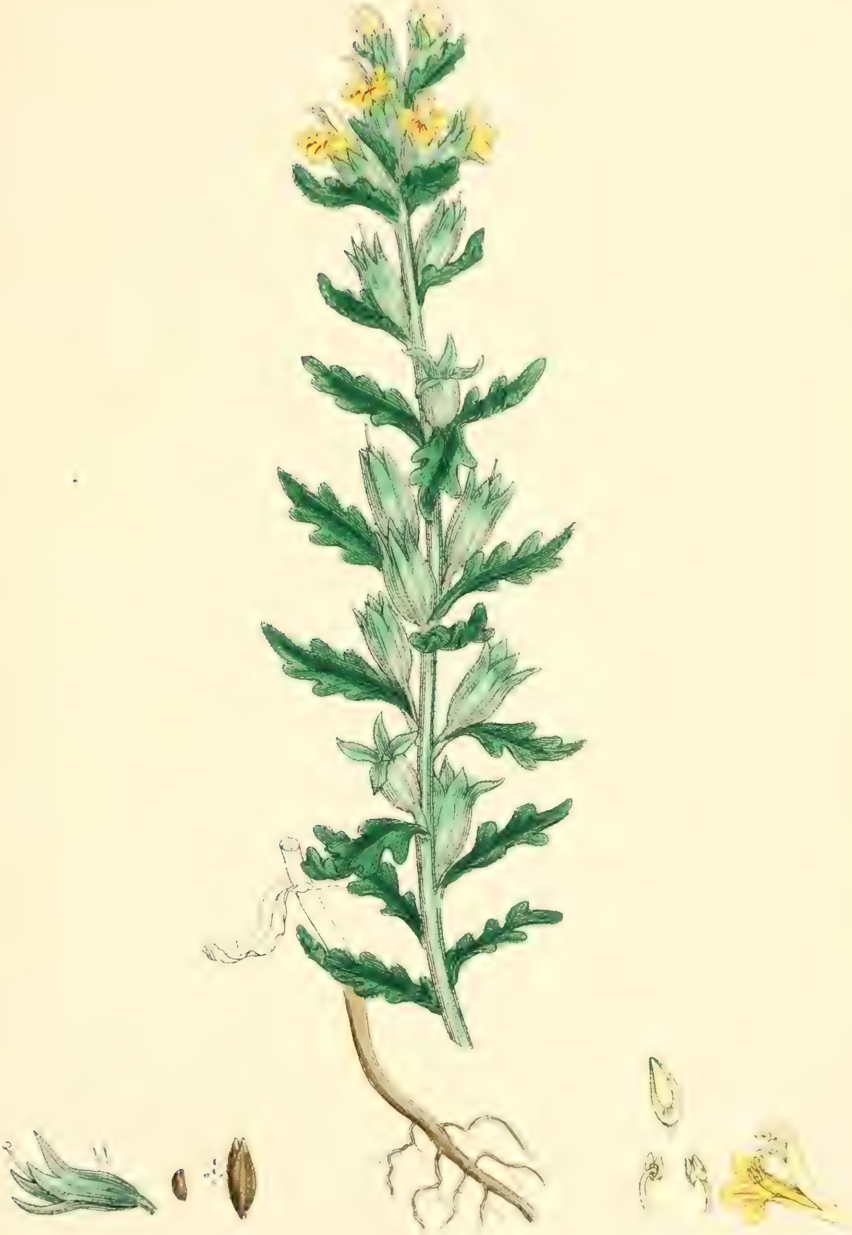


Euphrasia officinalis, var. gracilis. Common Eyebright, var β.



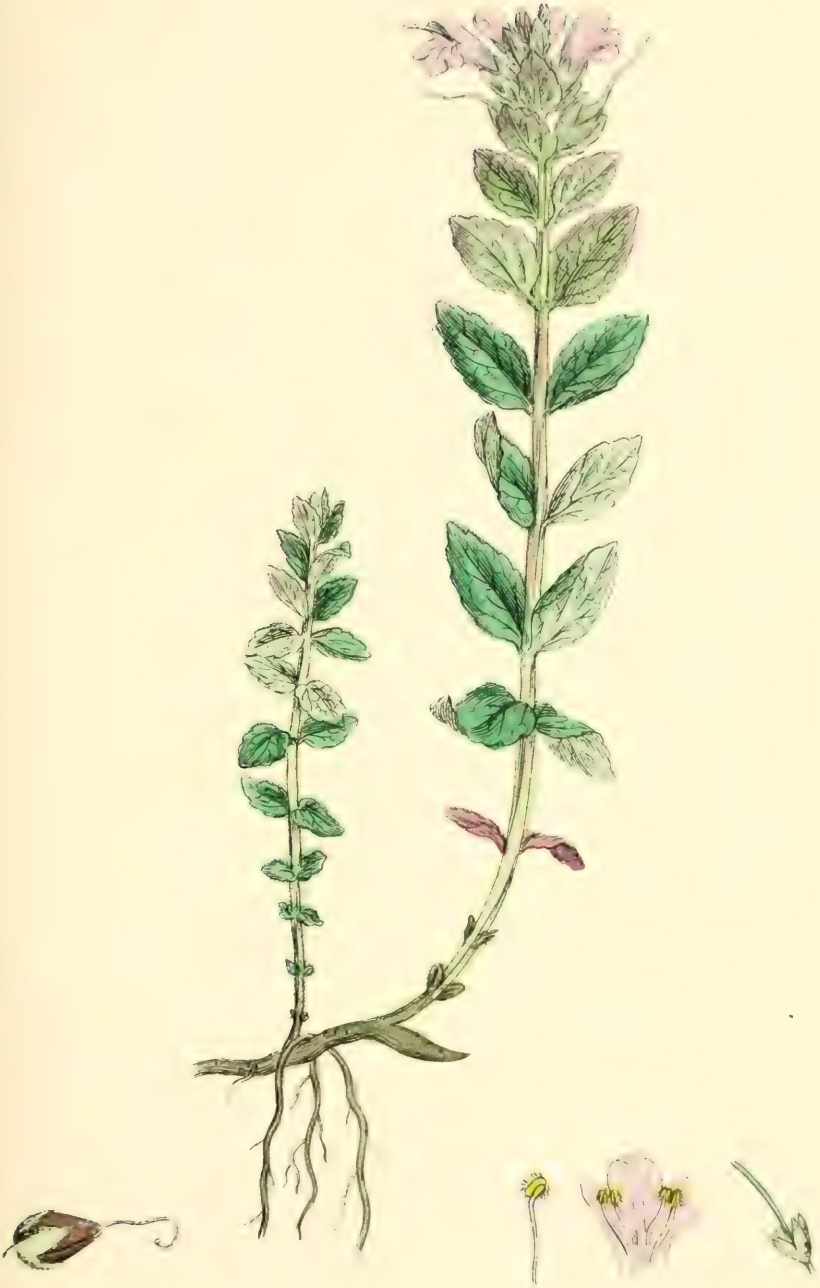
E. B. 1415.

Bartsia Odontites. Red Bartsia.



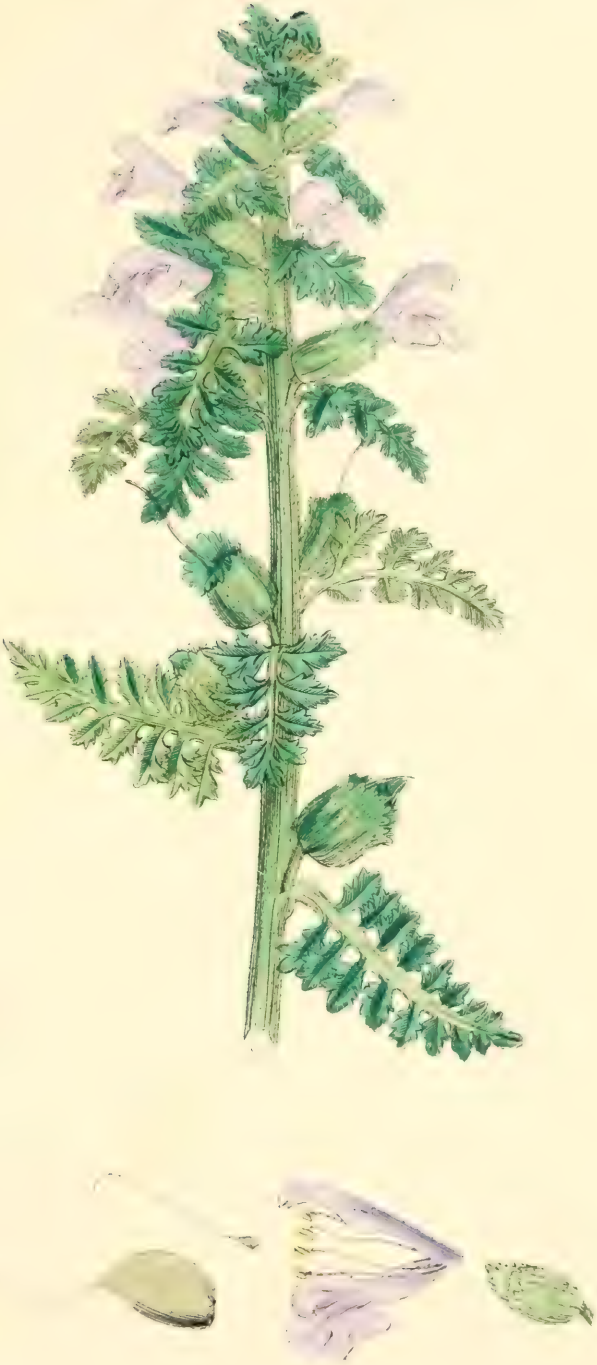
E.B. 1045.

Bartsia viscosa. Yellow Bartsia.



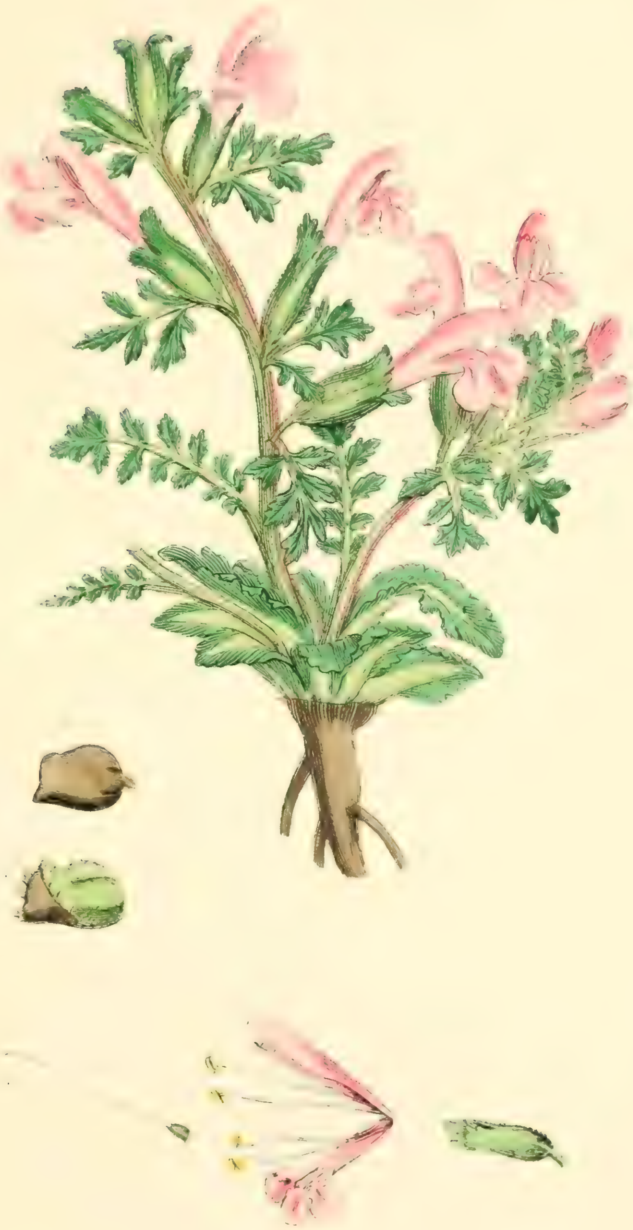
E. B. 361.

Bartsia alpina. Alpine Bartsia.



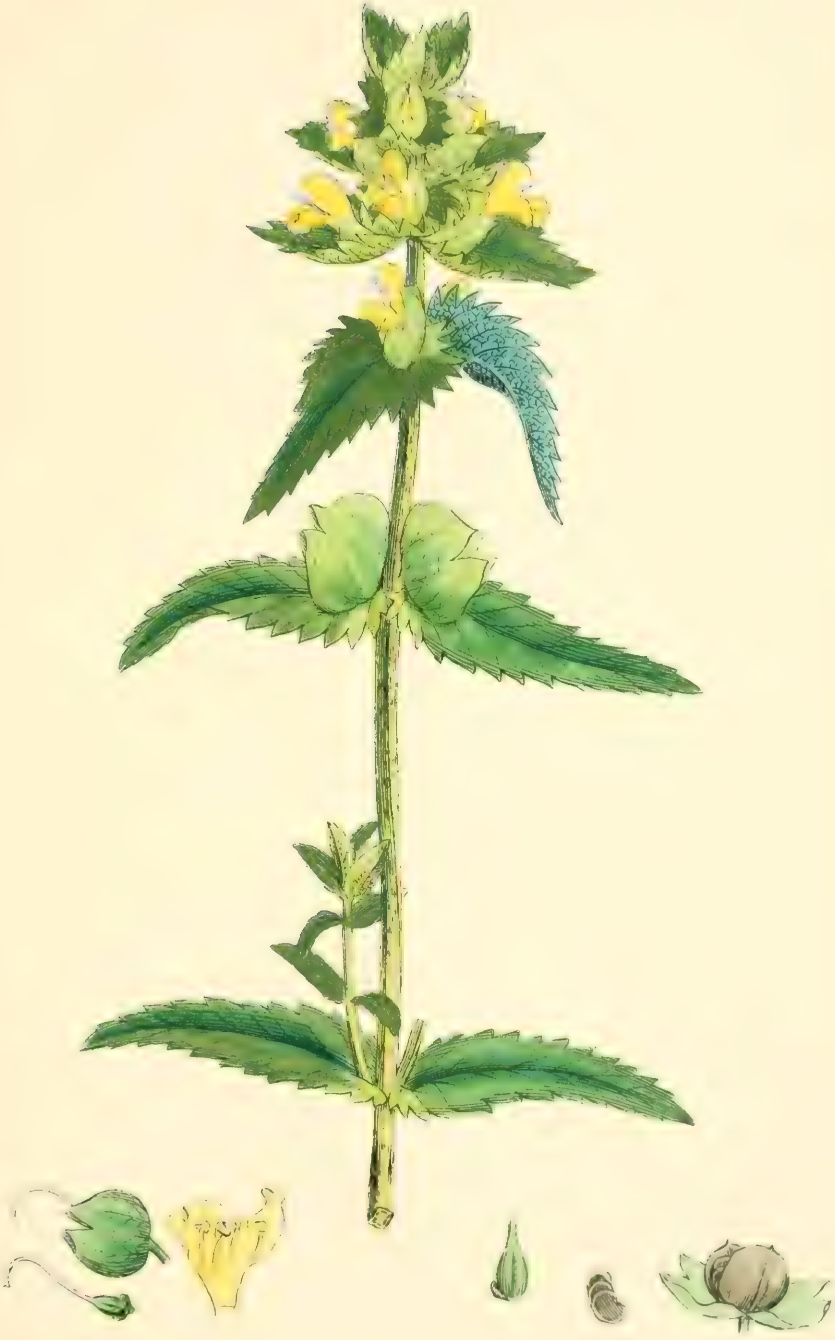
E. B. **399.**

Pedicularis palustris. Upright Lousewort.



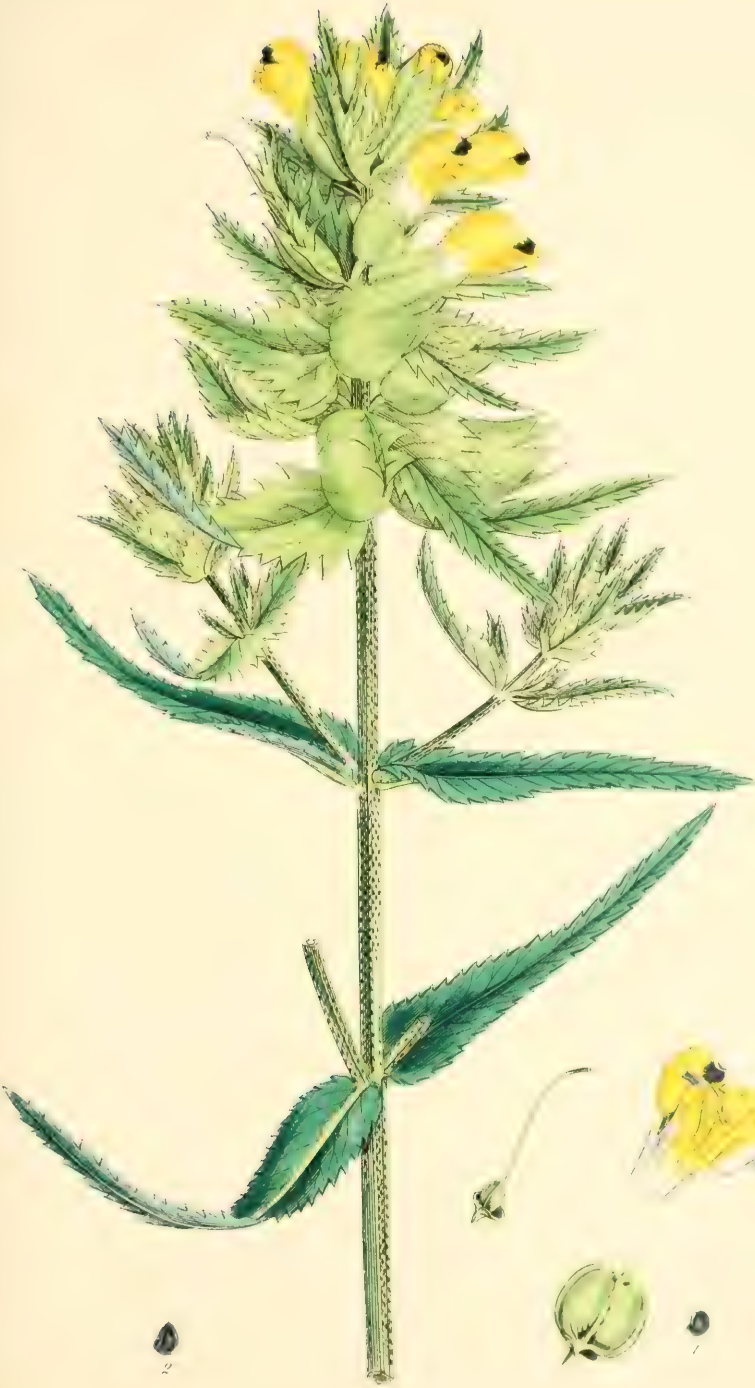
E.B. 400.

Pedicularis sylvatica. Procumbent Lousewort.



E. B. 657.

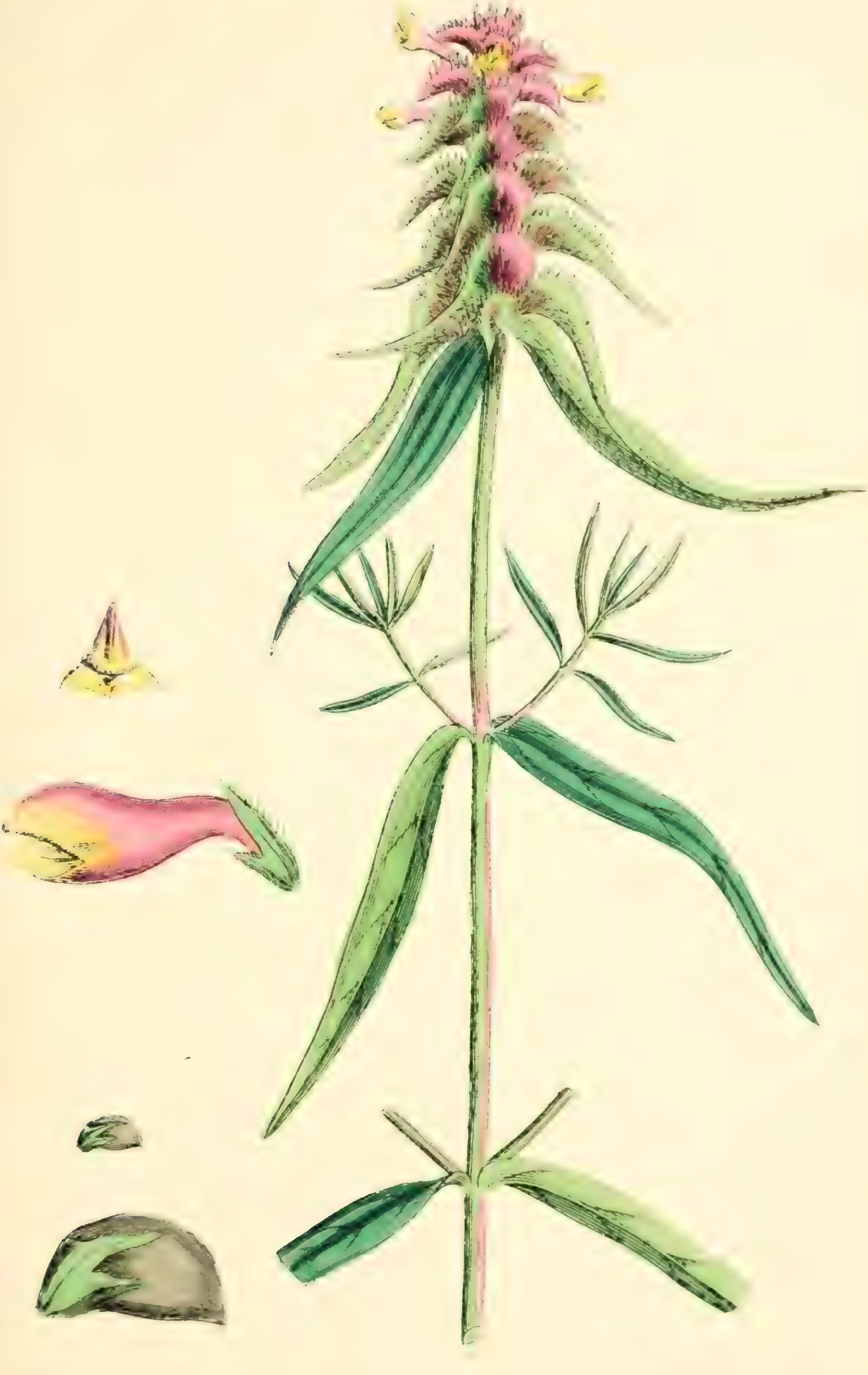
Rhinanthus minor. Common Yellow-Rattle.



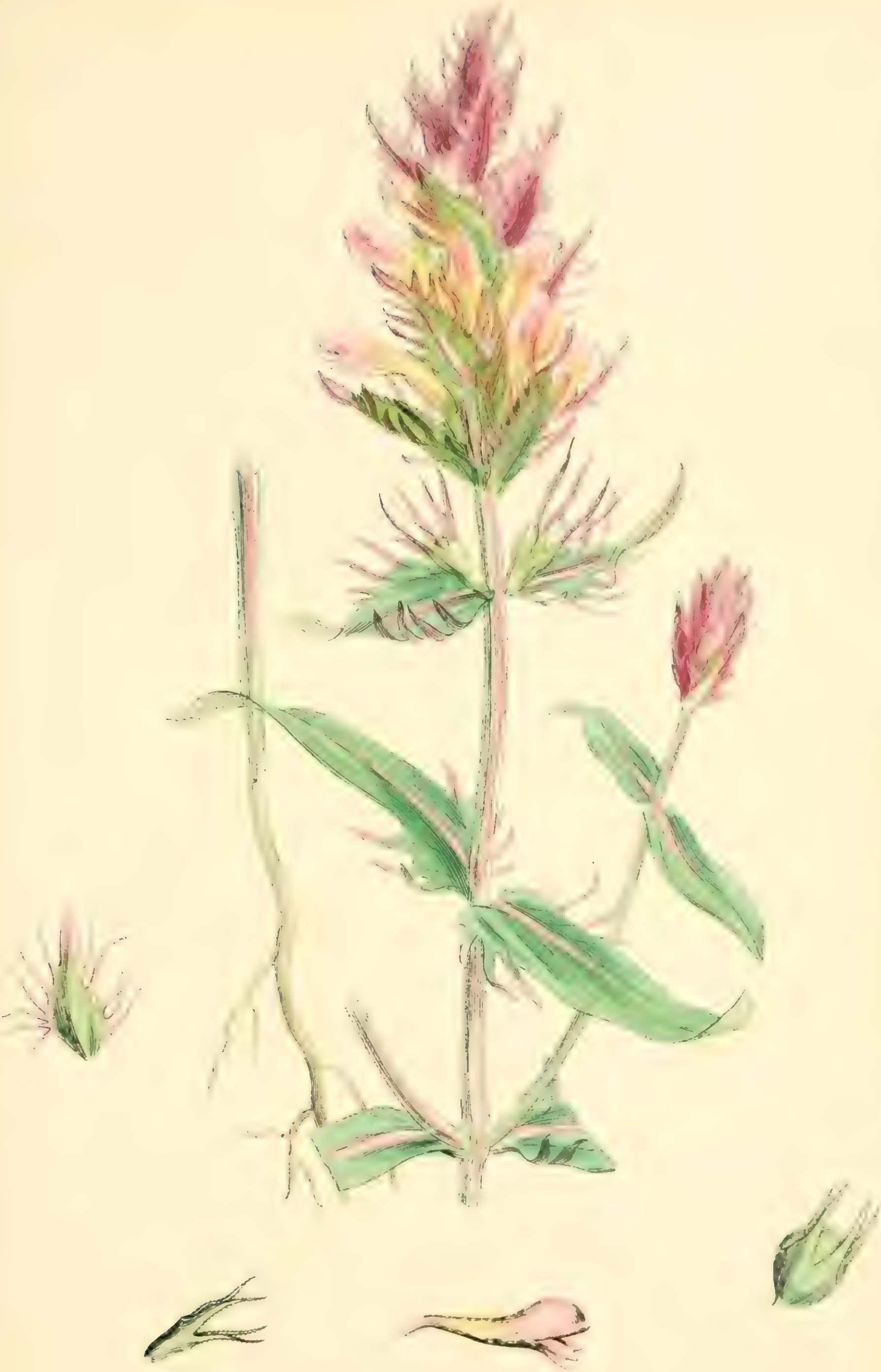
2737.

Rhinanthus major.   Greater Yellow-Rattle.

M.

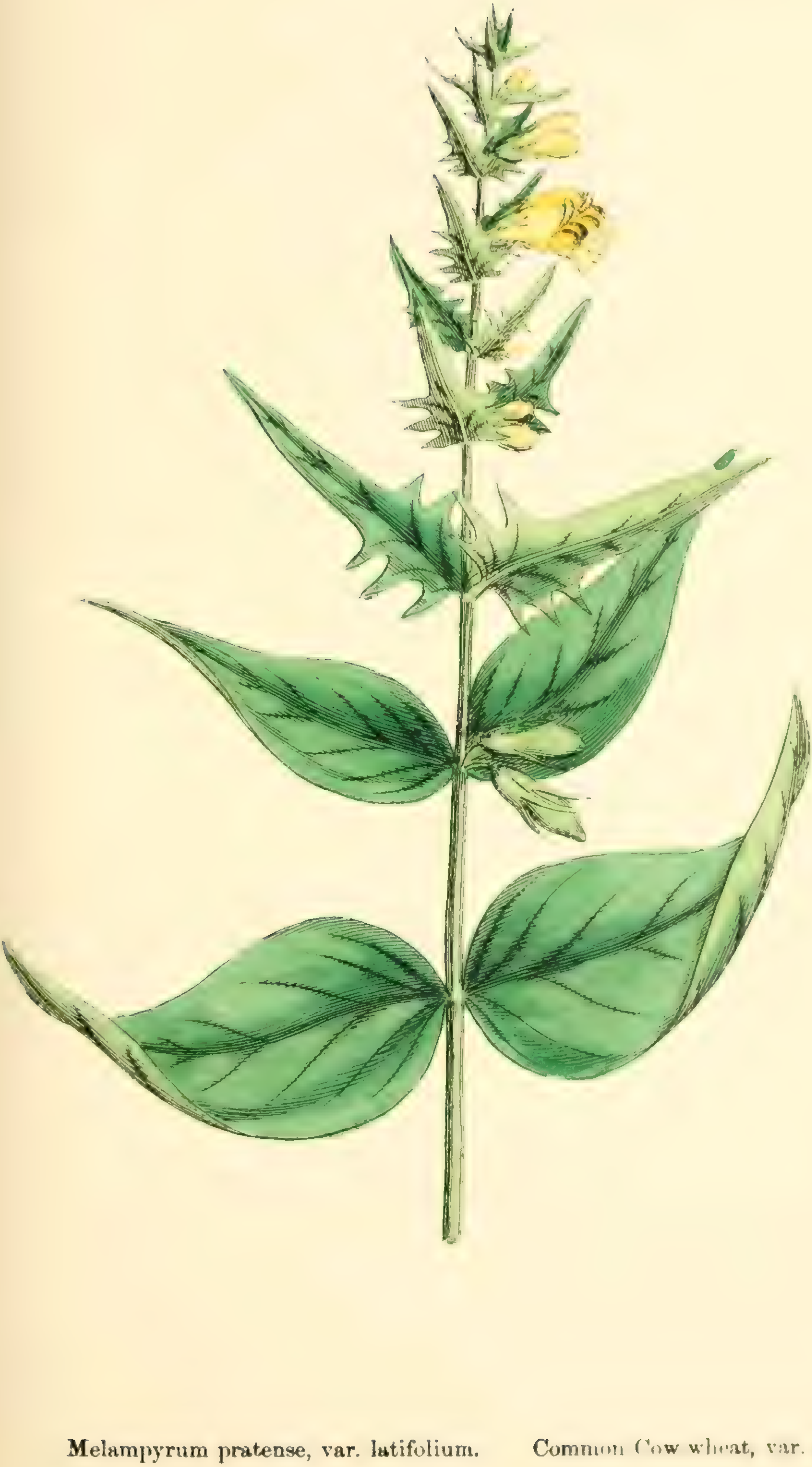


Melampyrum cristatum. Crested Cow-wheat.

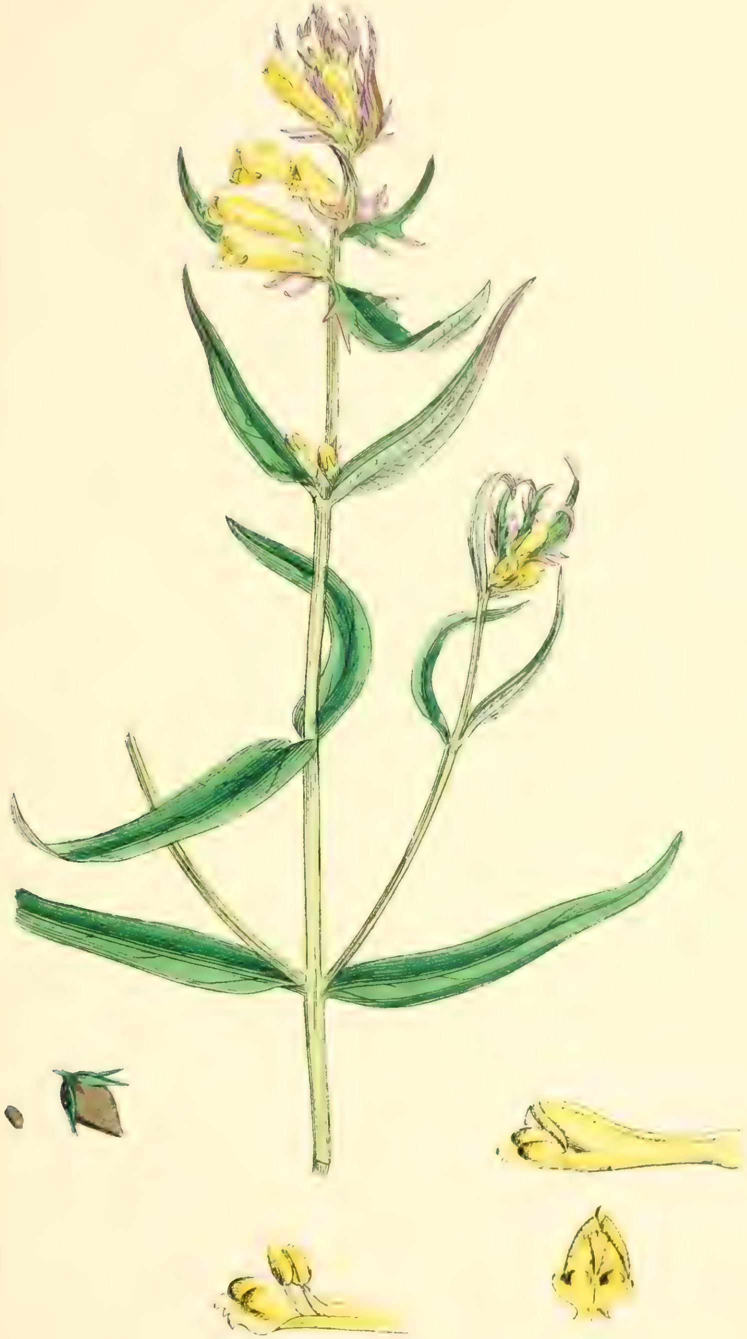


E.B. 53.

Melampyrum arvense. Field Cow wheat.

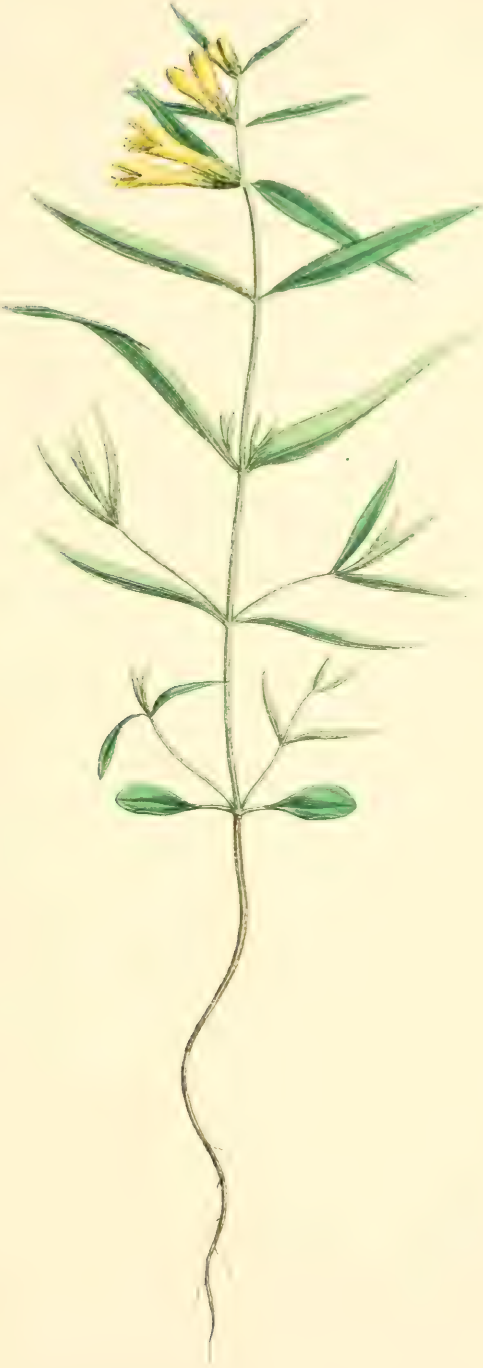


Melampyrum pratense, var. latifolium. Common Cow wheat, var. *a*.

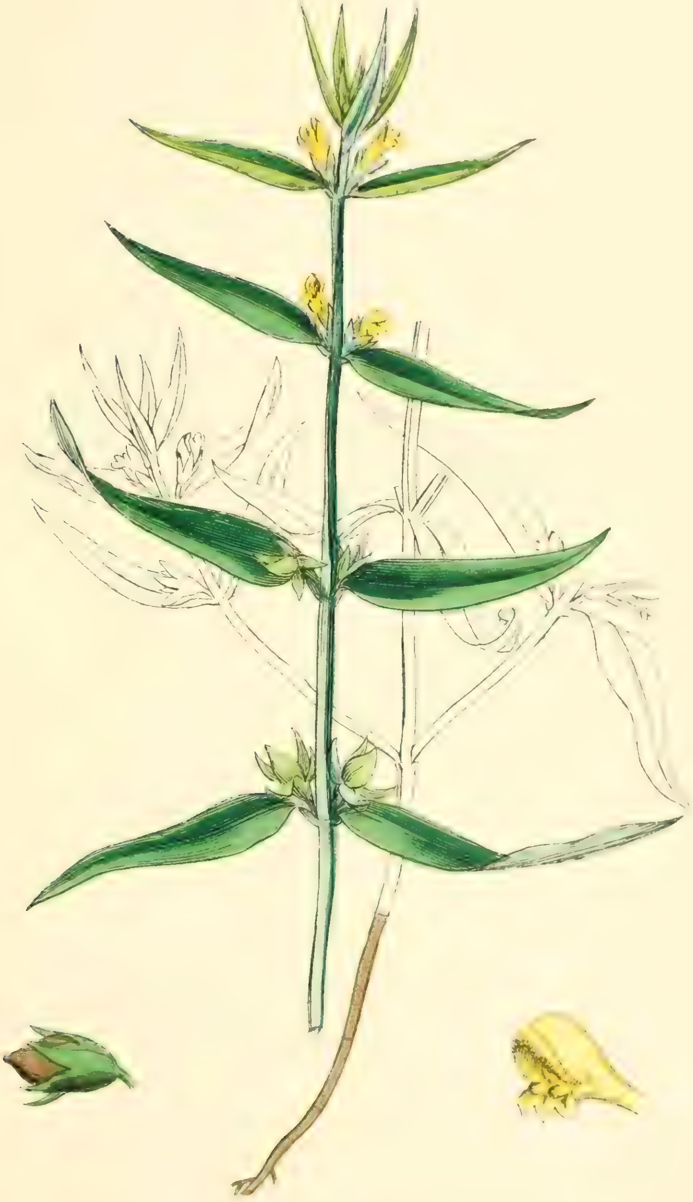


E.B. 113.

Melampyrum pratense, var. vulgare. Common Cow-wheat, var. β.

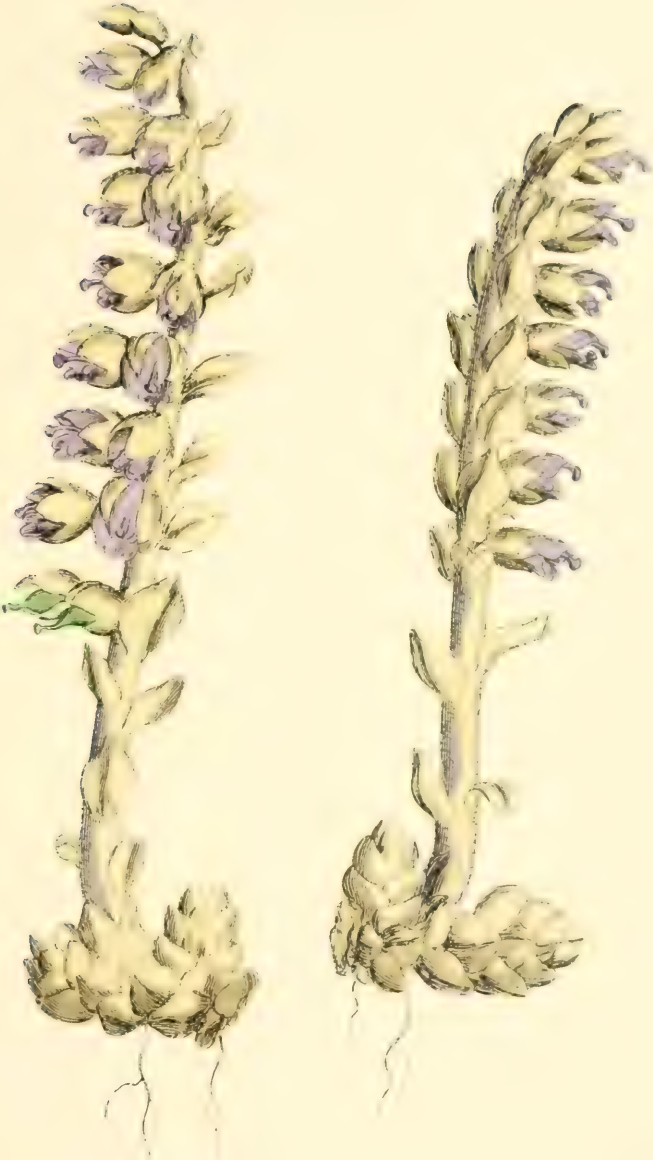


Melampyrum pratense, var. montanum. Common Cow-wheat, var. γ.

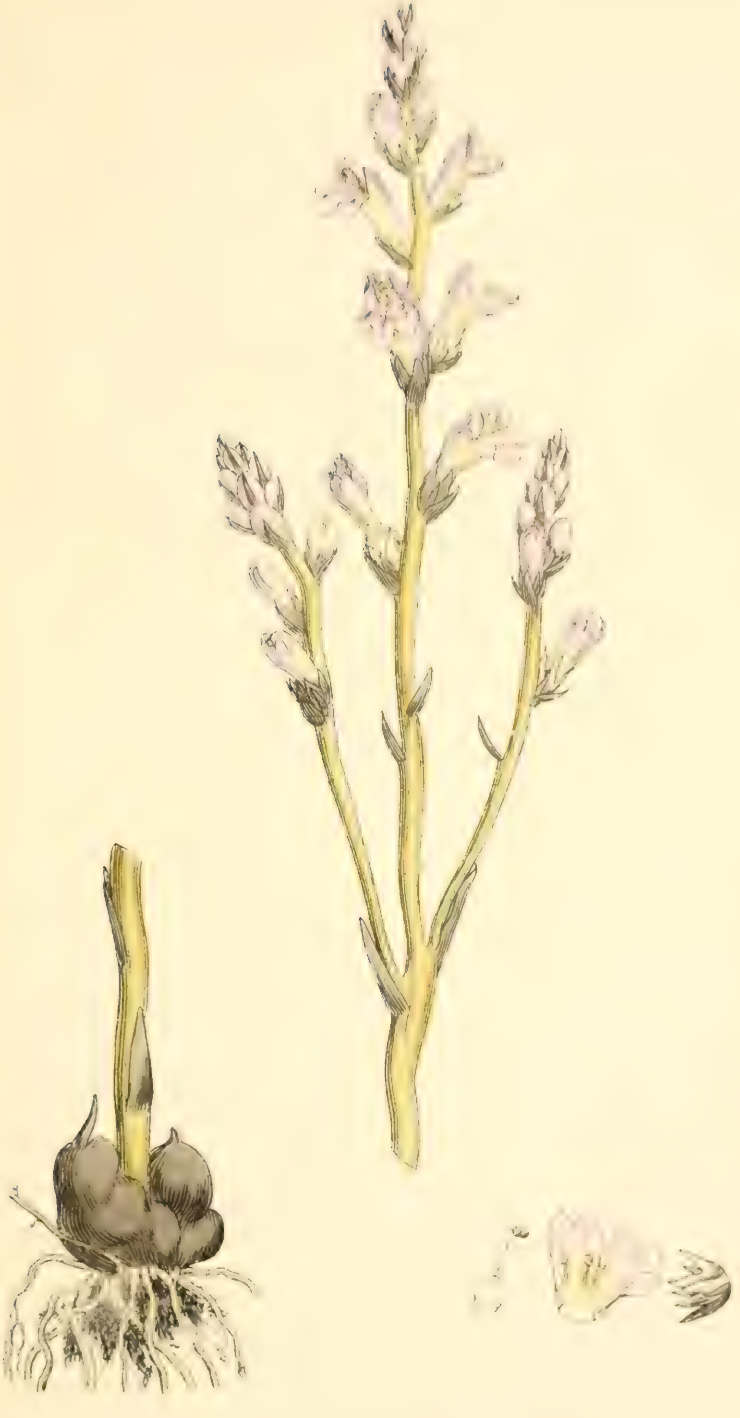


.B. 804.

Melampyrum sylvaticum. Wood Cow-wheat.

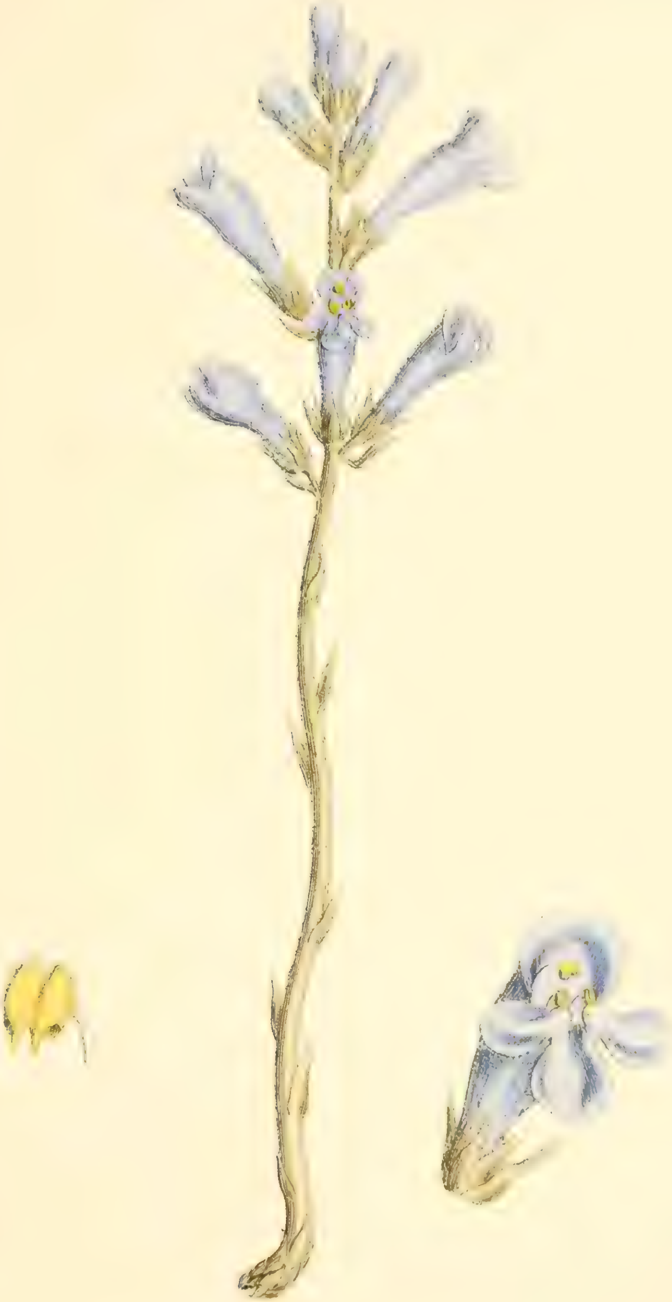


Lathræa squamaria. Toothwort.

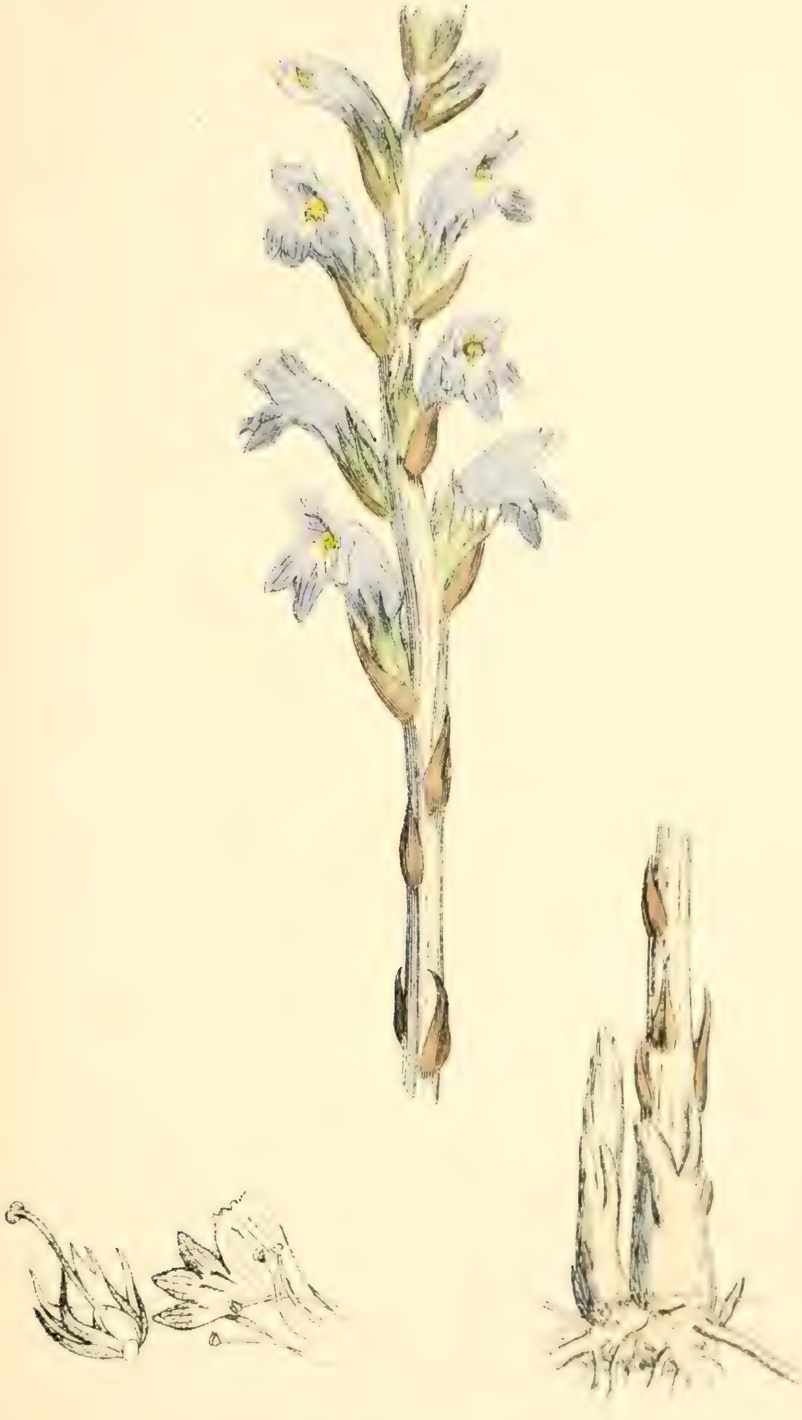


L. 194.

Orobanche ramosa. Branched Broom-rape.

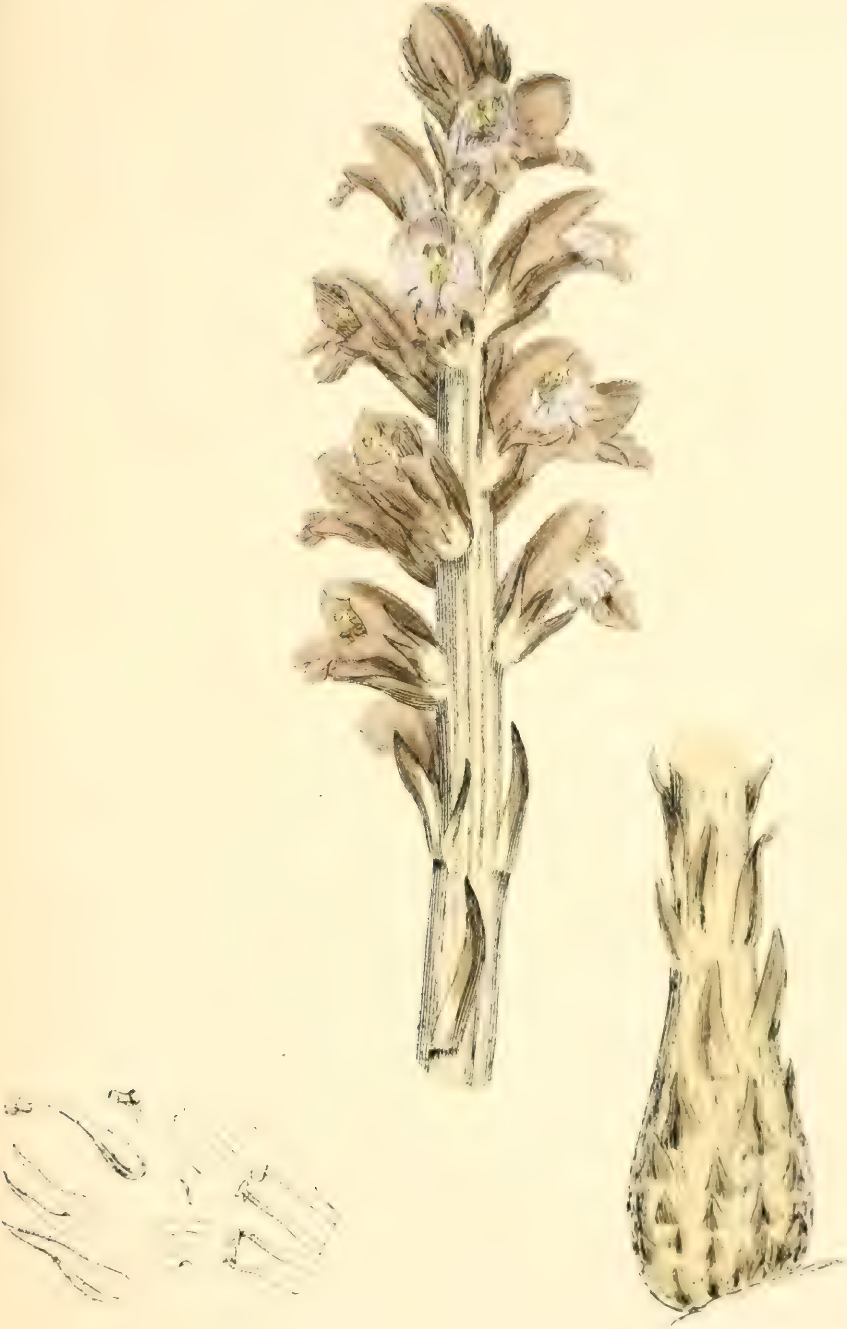


Orobanche arenaria. Sand Broom-rape.



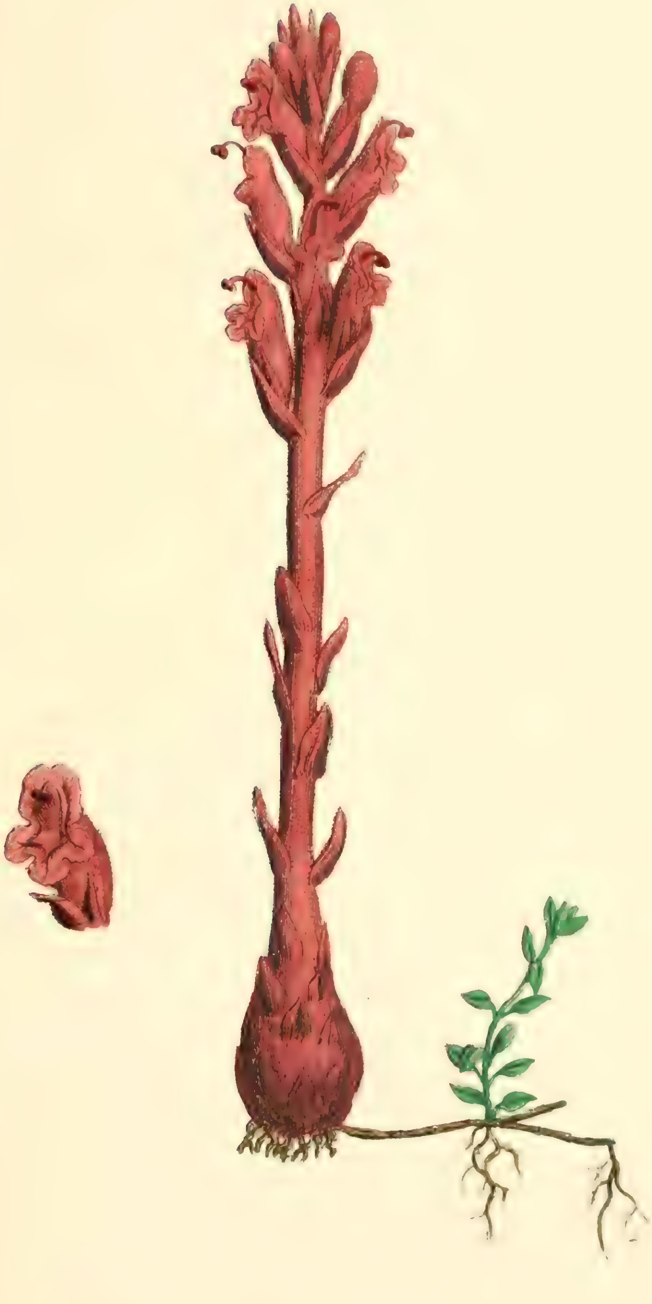
B. 423.

Orobanche cærulea. Purple Broom-rape.

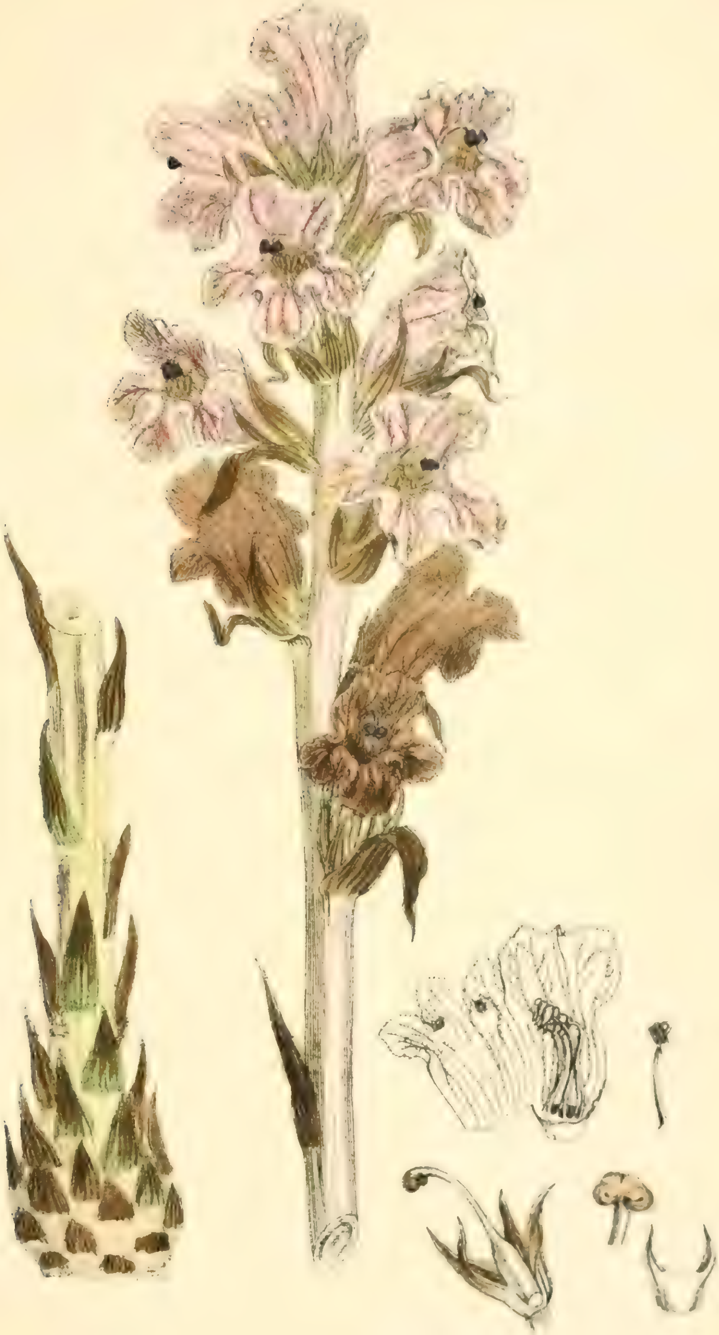


B. 421.

Orobanche Rapum. Greater Broom-rape

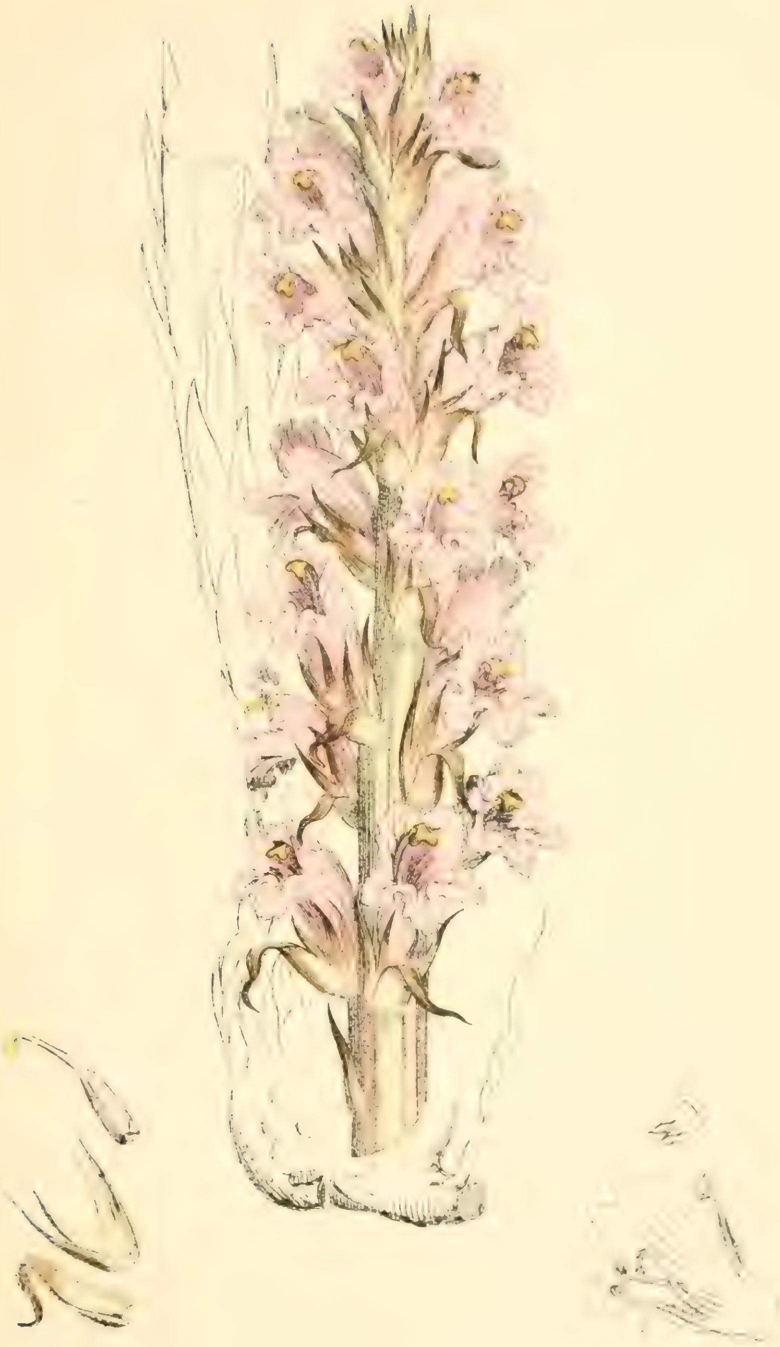


Orobanche rubra. Red Broom-rape.



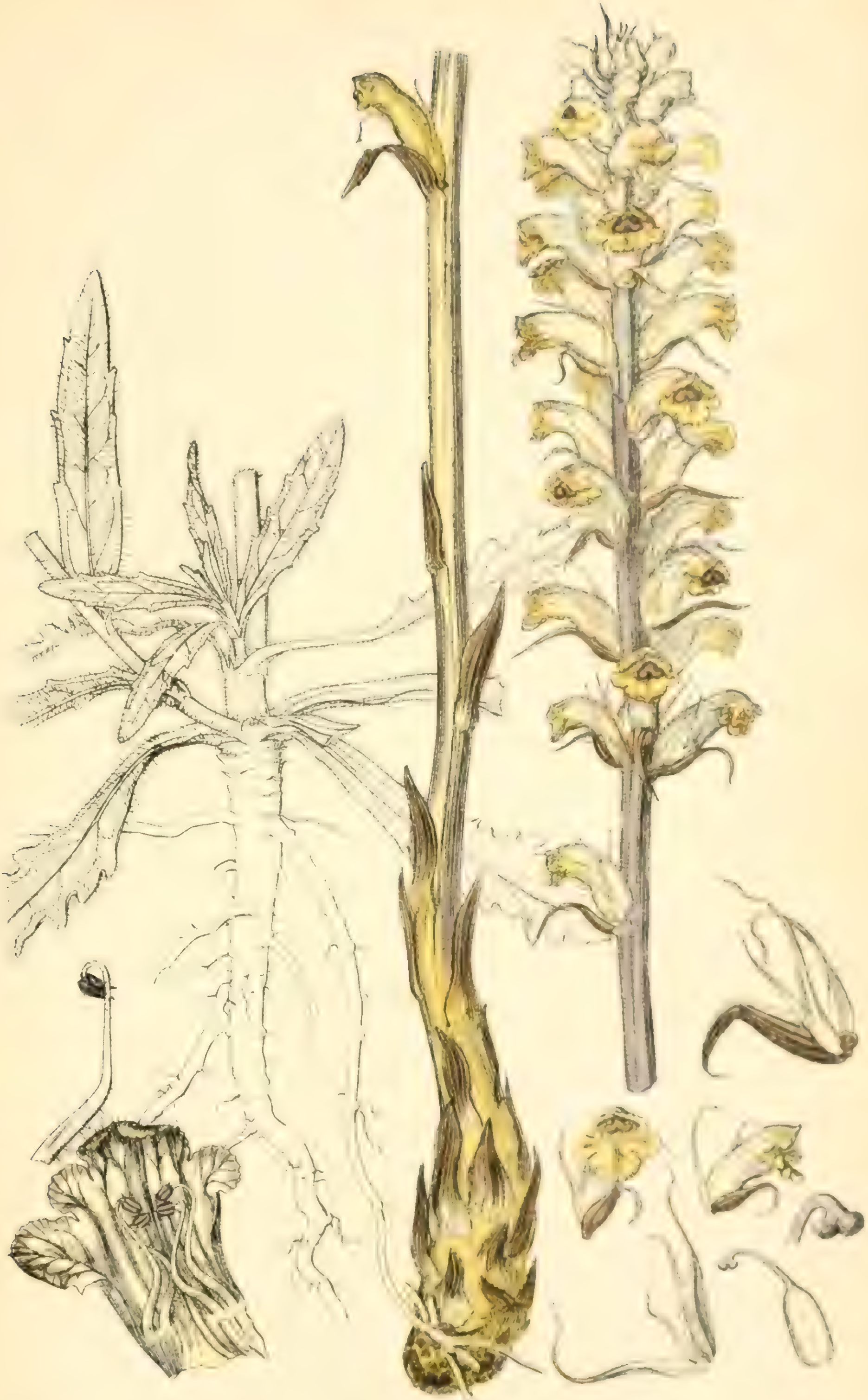
E. B. S. 2639.

Orobanche Caryophyllacea. Clove scented Broomrape.

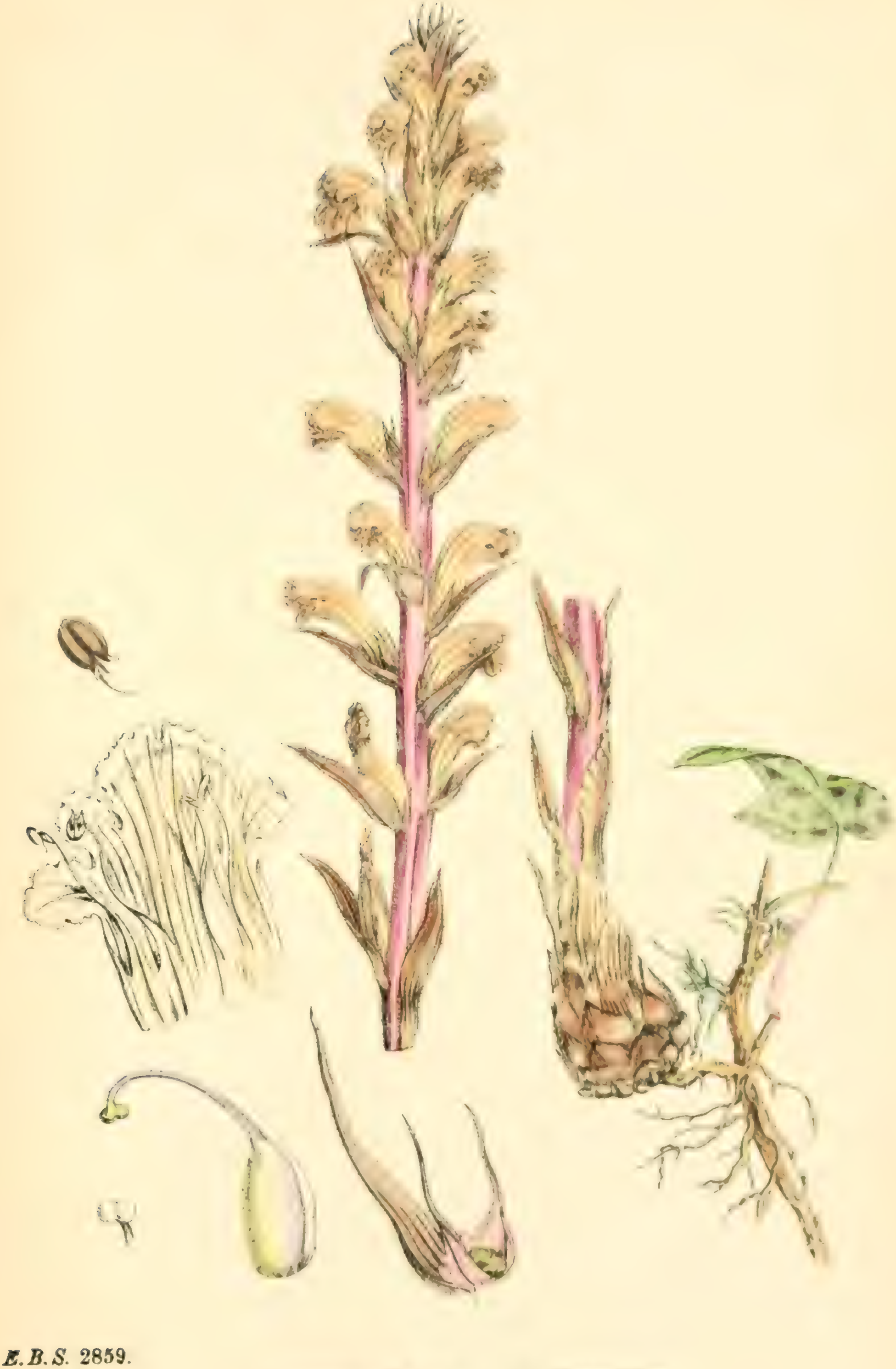


E. B. 568.

Orobanche elatior   Tall Broomrape.

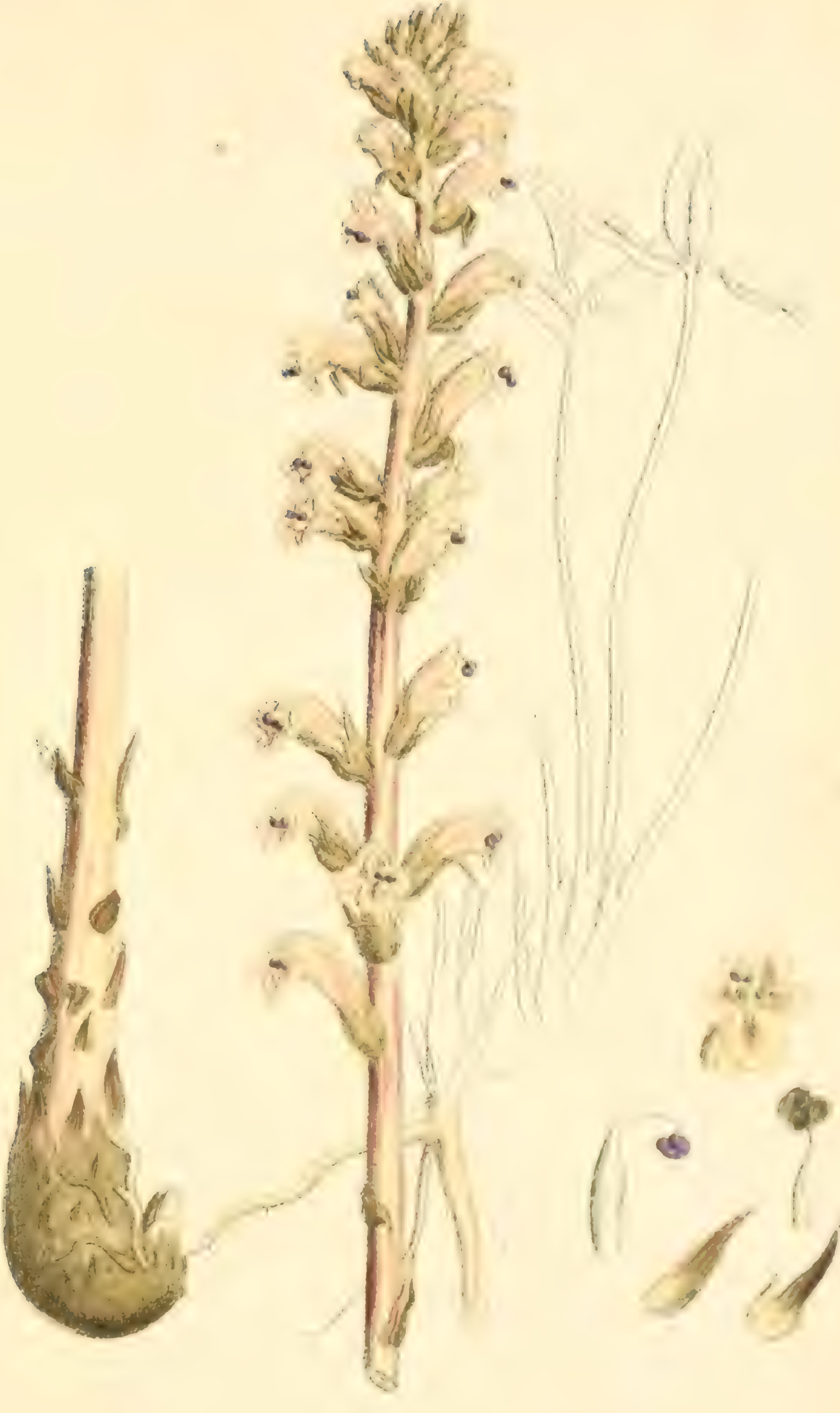


E. B. S. 2956. Orobanche Pieridis. Pieris Broom-rape.



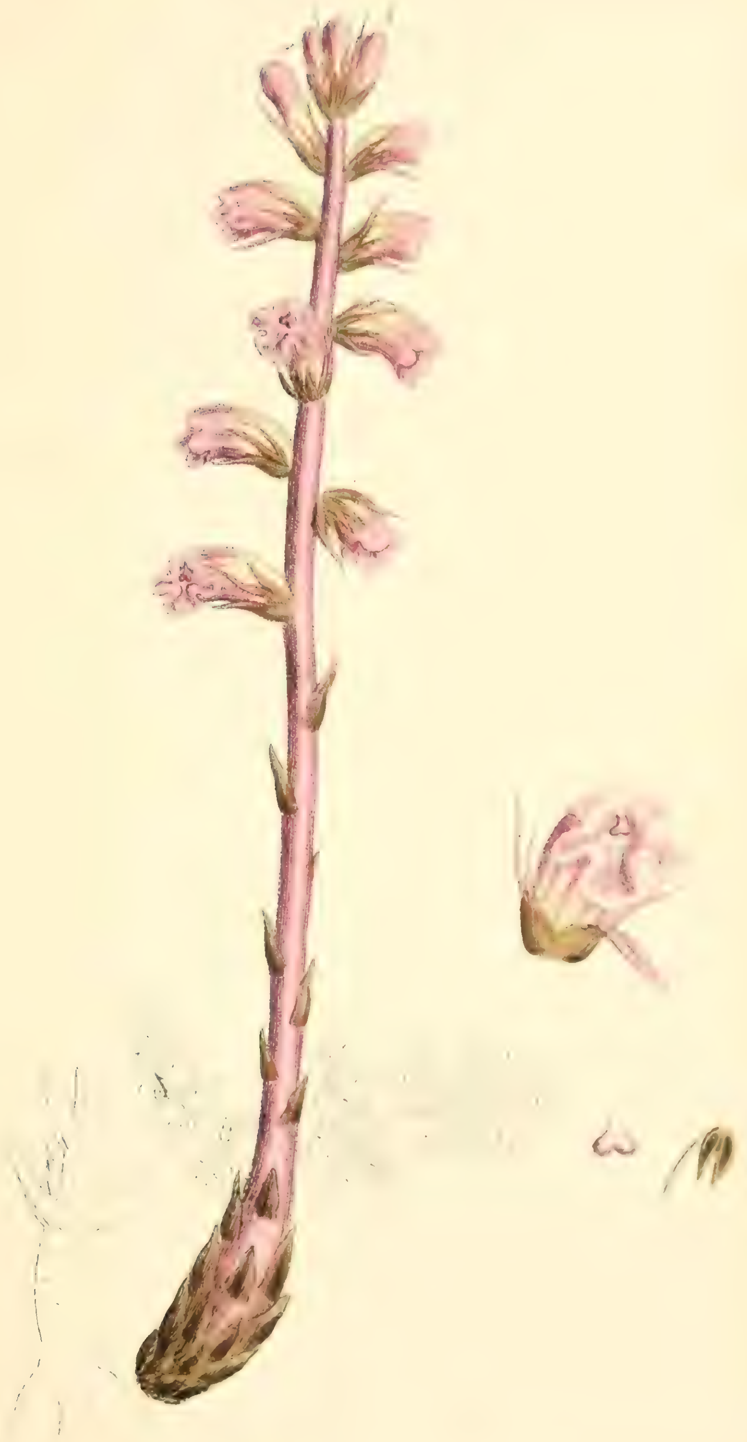
E.B.S. **2859.**

Orobanche Hederæ. Ivy Broom-rape.



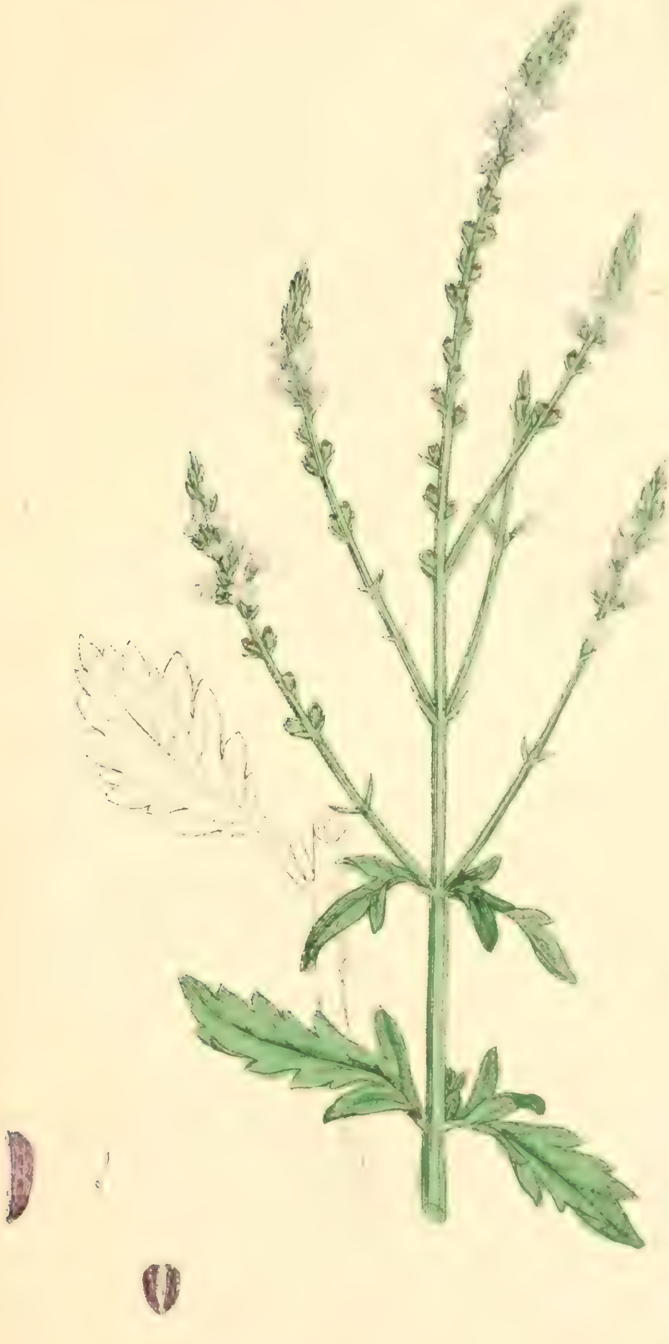
Orobanche eu-minor. Lesser Broom-rape.

MXVII.



Orobanche amethystea. Bluish Broom-rape.

MXVIII



Verbena officinalis. Common Vervain.

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